

SMITHSONIAN INSTITUTION  
UNITED STATES NATIONAL MUSEUM

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CONTRIBUTIONS  
FROM THE  
UNITED STATES NATIONAL HERBARIUM  
VOLUME XII, PART 6  
CATALOGUE  
OF  
THE GRASSES OF CUBA

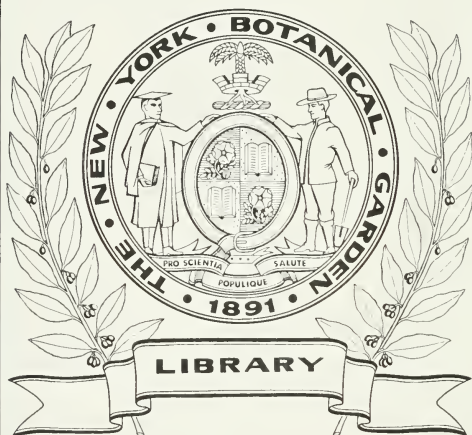
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By A. S. HITCHCOCK



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1909

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### CATALOGUE OF THE GRASSES OF CUBA

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BULLETIN OF THE UNITED STATES NATIONAL MUSEUM

ISSUED MARCH 23, 1909

## PREFACE.

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The accompanying paper by A. S. Hitchcock, Systematic Agrostologist of the United States Department of Agriculture, entitled Catalogue of the Grasses of Cuba, is the result of an exhaustive study of the material in the United States National Herbarium and in the herbarium of the Estación Central Agronómica de Cuba. It was chiefly through the efforts of Mr. Carl F. Baker, who obtained large collections in Cuba, that the specimens were made accessible to Mr. Hitchcock. It is hoped that this paper will be followed by similar ones upon other groups.

J. N. ROSE,  
*Acting Curator.*



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# CATALOGUE OF THE GRASSES OF CUBA.

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By A. S. HITCHCOCK.

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## INTRODUCTION.

The following list of Cuban grasses is based primarily upon the collections at the Estación Central Agronómica de Cuba, situated at Santiago de las Vegas, a suburb of Habana. The herbarium includes the collections made by the members of the staff, particularly Mr. C. F. Baker, formerly head of the department of botany, and also the Sauvalle Herbarium deposited by the Habana Academy of Sciences. These specimens were examined by the writer during a short stay upon the island in the spring of 1906, and were later kindly loaned by the station authorities for a more critical study at Washington. The Sauvalle Herbarium contains a fairly complete set of the grasses collected by Charles Wright, the most important collection thus far obtained from Cuba. In addition to the collections at the Cuba Experiment Station, the National Herbarium furnished important material for study, including collections made by A. H. Curtiss, W. Palmer and J. H. Riley, A. Taylor (from the Isle of Pines), S. M. Tracy, Brother Leon (De la Salle College, Habana), and the writer.

The earlier collections of Wright were sent to Grisebach for study. These were reported upon by Grisebach in his work entitled "*Catalogus Plantarum Cubensium*," published in 1866, though preliminary reports appeared earlier in the two parts of *Plantae Wrightianae*.<sup>a</sup> During the spring of 1907 I had the opportunity of examining the grasses in the herbarium of Grisebach in Göttingen.<sup>b</sup> In the present article I have, with few exceptions, accounted for the grasses listed by Grisebach in his catalogue of Cuban plants, and have appended a list of these with references to the pages in the body of this article upon which the species are considered. The numbers upon the labels of the Wright specimens in the Grisebach Herbarium are in many cases not the same as those under which the species were afterwards distributed and under which they were listed in the catalogue. These numbers I have designated as secondary numbers. Grisebach has sometimes connected on his labels the secondary number by the sign

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<sup>a</sup> Mem. Amer. Acad. n. ser. Vol. VIII. Part I, pp. 153 to 192, (as separate) 1860; Part II, pp. 503 to 536, (as separate) 1862. The grasses were included in Part II.

<sup>b</sup> Unless otherwise stated the writer has examined all the types mentioned in this paper.

of equality with the distribution number. The data upon the Grisebach labels are meager, usually consisting of the number and year, together with an abbreviation for eastern or western Cuba. The distribution numbers of the grasses reported upon by Grisebach are all below 3500. Wright, after his return from Cuba, studied his collections at the Gray Herbarium and published his results in a series of articles in conjunction with Doctor Sauvalle, of Cuba.<sup>a</sup> In the

<sup>a</sup> *Anales de la Academia de Ciencias, Médicas, Físicas y Naturales de la Habana*, Volumes V to IX, 1868 to 1872. This was reset and, an index being added, published in 1873 as *Flora Cubana*. The introduction to the first installment of the series (5: 196. 1868) is as follows: "Revisio Catalogi Grisebachiani vel index plantarum cubensium ad catalogum Cl. Grisebachii anno 1866 editum attemperata, pluribus Wrightianis novis speciebus aucta, valde quoque emendata, a cl. C. Wright; omnia pro Annalibus Regiæ Academiae Scientiarum Havanensis digesta, nominibusque adjectis cubensibus vulgo receptis a Francisco A. Sauvalle. Setiembre, 1868." Each continuation is headed "Revisto Catalogi Grisebachiani vel Index Plantarum Cubensium; a Francisco A. Sauvalle." The reprint has a title page as follows: "Flora Cubana. | Enumeratio Nova Plantarum Cubensium | vel | Revisio Catalogi Grisebachiani, | Exhibens | Descriptiones Generum Specierumque | Novarum | Caroli Wright, (Cantabrigiæ) et Francisci Sauvalle, | Synonymis | nominibusque vulgaribus Cubensis adjectis. | Auctore | Francisco A. Sauvalle, | Academiae Scientiarum Havanensis. | Havanae. | Imp. "La Antilla," de cacho-negrete, | Calle de Cuba num. 51. | 1873.

The Gramineæ appeared in Vol. VIII, 1871. The article was entirely reset for the reprint, but a comparison of this portion of the original with the reprint shows very few errors. In the original the serial numbers of the Gramineæ occur as follows:

Numbers.	Page.	Numbers.	Page.
2721 to 2727.....	157	2798 to 2800.....	205
2728 to 2755.....	158	2801 to 2812.....	206
2756 to 2764.....	200	2813 to 2828.....	207
2765 to 2769.....	201	2829 to 2855.....	208
2770 to 2780.....	202	2856 to 2869.....	209
2781 to 2791.....	203	2870 to 2878.....	287
2792 to 2797.....	204	2879 to 2891.....	288

In the reprint the numbers are as follows:

Numbers.	Page.	Numbers.	Page.
2721 to 2737.....	190	2799 to 2812.....	197
2738 to 2764.....	191	2813 to 2819.....	198
2765 to 2769.....	192	2820 to 2844.....	199
2770 to 2776.....	193	2845 to 2869.....	200
2777 to 2789.....	194	2870 to 2884.....	201
2790 to 2796.....	195	2885 to 2891.....	202
2797 to 2798.....	196		

present paper the new species published in Sauvalle's article are credited to Wright. The original set upon which Sauvalle's list is based is at the Gray Herbarium, and a fairly complete duplicate set is in the Sauvalle Herbarium.

The sets of Wright's plants were made up at the Gray Herbarium and given herbarium distribution numbers. Each number included such collections as were thought to be of the same species. Thus it often occurs that different specimens of the same distribution number may have been collected in different localities or may even belong to different species. The data found upon the field labels in various herbaria are mentioned under each species in the present list. There is also appended a list of the species of grasses included in Sauvalle's *Flora Cubana*, with references to their identification, and a list of the Wright numbers in sequence with their identification.

The plan followed in the present paper is to give under specimens cited a list of the specimens found in the herbarium of the Estación Central Agronómica, including the Sauvalle Herbarium, and in the National Herbarium, without statement as to the herbarium in which they are deposited. To these are added specimens found in the Gray Herbarium which do not occur in the herbaria just mentioned, and finally, specimens in the Herbarium of the New York Botanical Garden (Herb. N. Y. Bot. Gard.), including the herbarium of Columbia University, of which the Torrey Herbarium forms a part, which are not found in the others mentioned. The specimens collected by the staff of the botanical department of the Cuba Experiment Station are numbered in a single series and are indicated in this list by the letters HC (Herbarium Cubae). The data for the Wright specimens, given in the paragraph devoted to the enumeration of specimens, are understood to be found with the specimens in the Sauvalle Herbarium. Additional data, found with specimens in other herbaria, are quoted in the succeeding paragraph devoted to notes.

Grisebach enumerated 154 species of grasses in his catalogue. Sauvalle's *Flora Cubana* includes 170 species. The present list includes 228 species or well-marked subspecies.

### KEY TO THE GENERA.<sup>a</sup>

SERIES PANICEAE.—Spikelets 1-flowered, rarely 2-flowered; when 2-flowered the terminal floret perfect, the lower staminate or neutral (except in *Isachne*), no apparent internode between them; rachilla articulated below the glumes, the spikelets falling from the pedicels entire, singly, in groups, or together with joints of an articulate rachis; spikelets not laterally compressed (except in *Lithachne*).

Lemma and palea (the latter sometimes wanting in *Andropogoneae*) hyaline; glumes more or less indurated, the first largest; sterile lemma like fertile lemma in texture (except in *Alloteropsis*).

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<sup>a</sup> In this key the tribal characters are given with reference to the Cuban genera only, and in some cases would not hold good for the entire tribe.

Staminate and pistillate spikelets in different inflorescences; pistillate spikelets inclosed in a bony bead-like involucre (MAYDEAE).....1. *Coix* (p. 190).

Spikelets all perfect, or unisexual and arranged in pairs, the pistillate sessile, the staminate pedicellate (or all pedicellate in *Trachypogon*). (ANDROPOGONEAE.)

Joints of the rachis much thickened and excavated to receive the spikelets.

First glume of the perfect spikelet flat or somewhat convex; perennials.

6. *Manisuris* (p. 191).

First glume of the perfect spikelet hemispherical, pitted; annual.

7. *Hackelochloa* (p. 191).

Joints of rachis not thickened nor excavated for the reception of the spikelets.

Spikelets all alike, perfect; inflorescence a plume-like panicle.

Axis of racemes continuous, not articulate; spikelets awnless.

2. *Imperata* (p. 190).

Axis of racemes articulated.

Spikelets awnless.....3. *Saccharum* (p. 190).

Spikelets awned.....4. *Eriarthus* (p. 190).

Spikelets not alike.

All pedicellate; the perfect long-pedicellate, long-awned, the staminate short-pedicellate, awnless.....8. *Trachypogon* (p. 191).

Sessile and pedicellate, the former perfect, awned, the latter staminate, empty or wanting.

Perfect spikelets transversely rugose.....5. *Ischaemum* (p. 191).

Perfect spikelets not transversely rugose.

Sessile spikelets not all alike, the first to fifth pairs homonymous; awns 10 cm. long, stout; glumes bearing oil glands, lemon-scented when fresh.....13. *Heteropogon* (p. 196).

Sessile spikelets alike throughout.

Racemes of several to many joints, at least some of the racemes sessile.....9. *Andropogon* (p. 192).

Racemes reduced to 1 or 2 joints, all the racemes more or less pedunculate.

Pedicellate spikelets present, usually 2 to each sessile spikelet.....10. *Holcus* (p. 195).

Pedicellate spikelets wanting.

Awns not over 2 cm. long, delicate.

11. *Sorghastrum* (p. 195).

Awns over 10 cm. long, stout.

12. *Rhaphis* (p. 195).

Lemma and palea membranaceous or indurated; sterile lemma when present like the glumes in texture.

Lemma and palea membranaceous; axis of inflorescence not breaking up at maturity.

Spikelets 3 to 5 together, the clusters arranged in spikes, the glumes indurated. (ZOYSIEAE.)

Glumes covered with hooked spines.....14. *Nazia* (p. 196).

Glumes not spiny, united into a somewhat pitcher-shaped pseudo-involucre.....15. *Antheophora* (p. 196).

Spikelets distinct, paniculate. (TRISTEGINEAE.)

Fertile lemma awned; rather robust grasses.....16. *Arundinella* (p. 196).

Fertile lemma awnless; low grass with tuft of involute rather wiry basal leaves [doubtfully placed in this tribe].....17. *Triscenia* (p. 198).

Lemma and palea cartilaginous or chartaceous-indurated, conspicuously different in texture from the membranaceous glumes, rarely but little indurated. (PANICEAE.)

Spikelets unisexual; plants monoecious; blades abruptly contracted into petiole-like bases.

Inflorescence consisting of 2 slender racemes, one staminate the other pistillate, digitate at the summit of a naked culm; leafy stems distinct from the base; plants low .....44. *Mniochloa* (p. 233).

Inflorescence borne on leafy culms; fruit bony-indurated.

Fruit dorsally compressed; panicles terminal on culms or leafy branches, pistillate spikelets above, staminate spikelets below in same panicle .....42. *Olyra* (p. 233).

Fruit laterally compressed, conspicuously gibbous on upper dorsum; panicles all axillary or axillary and terminal, the terminal when present wholly staminate .....43. *Lithachne* (p. 233).

Spikelets all perfect.

Spikelets 2 to 4 together sunken in the alternate notches of a broad, thickened rachis; creeping grasses .....41. *Stenotaphrum* (p. 232).

Spikelets not sunken in notches of a thickened rachis.

Spikelets solitary or in small clusters subtended by an involucre consisting of 1 to many bristles (sterile branches), these sometimes grown together.

Involucre persistent on the axis, spikelets deciduous.

36. *Chaetochloa* (p. 230).

Involucre deciduous with and attached to the spikelets.

Involucre a spiny bur inclosing 1 to 5 spikelets.

37. *Cenchrus* (p. 231).

Involucre of distinct bristles.

Involucre of a single sterile branch produced beyond each spikelet .....40. *Paratheria* (p. 232).

Involucre of numerous often plumose bristles.

38. *Pennisetum* (p. 232).

Spikelets not involucre.

Fruits not rigid, margins of lemma not inrolled.

Inflorescence of slender racemes, divergently digitate at the summit of the culm, both glumes wanting.

18. *Reinmarochloa* (p. 198).

Inflorescence paniculate.

Blades cordate-clasping, fruit open at summit; aquatic or semiaquatic grasses.....29. *Hymenachne* (p. 212).

Blades not cordate-clasping.

Spikelets awned, first glume with a pedicel-like callus.....39. *Chaetium* (p. 232).

Spikelets awnless; fruits cartilaginous-indurated, papillose, usually dark-colored, lemmas with thin, usually white margins.

Fruit open at the white-margined summit; spikelets tuberculate-hispid between the nerves.....21. *Leptocoryphium* (p. 207).

Fruit not open nor white-margined at summit.

Sterile lemma like the fertile lemma in texture .....26. *Alloteropsis* (p. 210).

Sterile lemma like the glumes in texture.

Spikelets clothed with long silky hairs.....25. *Valota* (p. 210).

Spikelets glabrous or pubescent only.

24. *Syntherisma* (p. 208).

Fruits indurated-rigid (or if thin not open at the summit nor hyaline-margined).

Spikelets placed with the back of the fruit turned away from the main axis.

First glume and rachilla joint forming a swollen ring-like callus; fruit mucronate or shortly awn-pointed.

22. *Eriochloa* (p. 207).

First glume present or wanting, not forming a ring-like callus; spikelets in slender racemes.

First glume as long as the spikelet or nearly so; spikelets swollen on the side toward the axis and fitting into alternate hollows; inflorescence a single raceme .....27. *Mesosetum* (p. 211).

First glume wanting or not over one-fourth the length of the spikelet.

Racemes racemose along the main axis; first glume present.....28. *Brachiaria* (p. 212).

Racemes digitate or subdigitate, first glume wanting.....20. *Axonopus* (p. 207).

Spikelets with the back of the fruit turned toward the main axis.

Spikelets plano-convex, subsessile in spike-like racemes, typically lacking the first glume (both glumes wanting in *P. pulchellum*).

19. *Paspalum* (p. 199).

Spikelets unequally biconvex; paniculate, or if racemose the first glume present.

Fertile florets 2.....23. *Isachne* (p. 208).

Fertile floret 1.

Glumes awnless.

Second glume broad and saccate, panicle contracted or spike-like.

30. *Sacciolepis* (p. 212).

Second glume not broad nor saccate.

Margins of lemma inrolled; no lateral appendages nor excavations at base of fruit....32. *Panicum* (p. 214).

Margins of lemma not inrolled; either lateral appendages or excavations at base of fruit.

33. *Ichnanthus* (p. 228).

Glumes or one of them awned, or cuspidate.

Fruit cuspidate, palea free at the tip; second glume and sterile lemma tapering into an awn or cuspidate point.

31. *Echinochloa* (p. 213).

Fruit not cuspidate, palea not free; awns arising from a toothed summit.

Spikelets clothed with rose-colored silky hairs; first glume minute.

34. *Tricholaena* (p. 229).

Spikelets pubescent with short pale hairs, first glume nearly as long as the second.35. *Oplismenus* (p. 229).



SERIES POACEAE.—Spikelets 1 to many-flowered, the imperfect or rudimentary floret, if any, uppermost; rachilla articulated (except in Oryzeae) above the glumes, which are persistent on the pedicel or rachis after the fall of the florets; when 2 to many-flowered a manifest internode of the rachilla separating the florets and articulated below them; spikelets laterally compressed.

Spikelets articulated below the glumes. (ORYZAE.)

Spikelets unisexual, plants monoecious.

Spikelets in pairs, one large, perfect, sessile, the other small, staminate, long-pedicelled; the broad oblanceolate blades with transverse veins between the longitudinal nerves.....45. *Pharus* (p. 234).

Spikelets not in pairs, the staminate and pistillate in different panicles; blades linear, not cross-veined.....46. *Luziola* (p. 234).

Spikelets all perfect.

Glumes wanting, lemma awnless.....48. *Homalocenchrus* (p. 234).

Glumes present.

Glumes minute, awnless; lemma awned except in cultivated forms.

47. *Oryza* (p. 234).

Glumes about as long as the floret or longer, awned.

Glumes tapering into awns; spikelets, including awns, over 3 cm. long.....49. *Achlaena* (p. 235).

Glumes awned from the notched apex; spikelets, including awns, scarcely 1 cm. long.....50. *Reynaudia* (p. 235).

Spikelets articulated above the glumes.

Culms woody, perennial, at least at the base, leaf blades commonly articulated with and deciduous from the sheath. (BAMBUSEAE.)

66. *Arthrostylidium* (p. 245).

Culms herbaceous, annual, leaf blades not articulated with the sheath.

Inflorescence of 1-sided spikes or racemes, spikelets sessile or nearly so. (CHLORIDEAE.)

Plants dioecious or monoecious, the staminate awnless, pistillate with numerous awns; low stoloniferous grass.....60. *Opizia* (p. 242).

Plants not dioecious, spikelets all alike.

Spikelets with 1 perfect floret, sometimes 1 or more sterile florets above the perfect one.

No sterile florets, spikelets awnless, spikes slender, digitate.

54. *Capriola* (p. 238).

One or two sterile florets above the perfect one, spikelets generally awned.

Spikes digitate or approximate in apparent whorls at the summit of the culm.....55. *Chloris* (p. 238).

Spikes remote along the main axis. 56. *Bouteloua* (p. 240).

Spikelets with 2 or 3 perfect florets.

Spikes alternate, more or less remote along the main axis, spikelets not crowded.....59. *Leptochloa* (p. 241).

Spikes digitate or nearly so, spikelets crowded.

Axis of spike not produced beyond the uppermost spikelet, glumes and lemmas not cuspidate...57. *Eleusine* (p. 241).

Axis of spike produced into a naked cuspidate point, glumes and lower lemmas cuspidate. 58. *Dactyloctenium* (p. 241).

Inflorescence paniculate, sometimes contracted but spikelets never sessile in 1-sided spikes.

Spikelets 1-flowered. (AGROSTIDEAE.)

Lemma awnless.....53. *Sporobolus* (p. 237).

## Lemma awned.

Lemma indurated, convolute, awn 3-fid (lateral awns minute or wanting in *A. scabra*) ..... 51. *Aristida* (p. 235).

Lemmas not indurated, tapering into a capillary awn.

52. *Muhlenbergia* (p. 237).

## Spikelets 2 to many-flowered. (FESTUCEAE.)

Lemmas cleft above into a pappus-like crown of bristles.

61. *Pappophorum* (p. 242).

## Lemmas entire.

Lemmas clothed with long silky hairs, tall, reed-like, diœcious grasses ..... 62. *Gynerium* (p. 242).

Lemmas not clothed with silky hairs.

Lemmas 3-nerved, not at all indurated. 63. *Eragrostis* (p. 242).

Lemmas many-nerved, somewhat indurated and rigid.

Sterile lemma 1 to 3 above the glumes; plants not diœcious ..... 64. *Uniola* (p. 245).

Sterile lemmas above glumes none; plants diœcious.

65. *Distichlis* (p. 245).

## CATALOGUE OF GENERA AND SPECIES.

## 1. COIX L. Sp. Pl. 972. 1753.

1. *Coix lachryma-jobi* L. Sp. Pl. 972. 1753.

Pinar del Rio, *Baker & Abarca*, HC 3686; El Guama, *Palmer & Riley* 142.

This is originally from tropical Asia, but is now cultivated for ornament in the warmer regions of both hemispheres, whence it has escaped.

## 2. IMPERATA Ciril. Pl. Rar. Ic. 2: 26. pl. 11. 1792.

1. *Imperata brasiliensis* Trin. Mem. Acad. Petersb. VI. 2: 331. 1833.

La Magdalena, *Baker* HC 4946; Madruga, *Britton* 630; without locality, *Wright* 3486; Cienfuegos, *Combs* 701, in Gray Herbarium; Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard.; Pinar del Rio, *Shafer* 310 in Herb. N. Y. Bot. Gard.

The type in the Trinius Herbarium is from Serra da Lapa, Brazil, though Trinius in the original publication cites merely "V. spp. Brazil." *I. caudata* Trin., as shown by the type in the Trinius Herbarium, differs in having smaller spikelets (about 2.5 mm. long), longer and more copious hairs, and an elongated inflorescence. The spikelets of *I. brasiliensis* are 4 mm. long. Wright's specimen (3486) is the latter species as shown by the specimen in the herbarium of Grisebach and in that of Sauvalle. This is referred to *I. caudata* by Grisebach<sup>a</sup> and Sauvalle.<sup>b</sup>

## 3. SACCHARUM L. Sp. Pl. 54. 1753.

1. *Saccharum officinarum* L. Sp. Pl. 54. 1753.

Cienfuegos, *Pringle* 17; Guanajay, *Curtiss* 635.

This species (sugar cane) is grown in all tropical countries, and the above specimens are from cultivated plants.

## 4. ERIANTHUS Michx. Fl. Bor. Amer. 1: 54. 1803.

1. *Erianthus saccharoides* Michx. Fl. Bor. Amer. 1: 55. 1803.

Laguna San Mateo, Pinar del Rio, *Wright* 3903.

In Sauvalle's Flora Cubana this is called *Andropogon alopecuroides* L. The latter species, however, has a twisted awn, while in *E. saccharoides* the awn is straight or only slightly bent, not twisted.

<sup>a</sup> Cat. Pl. Cub. 236. 1866.

<sup>b</sup> Anal. Acad. Cienc. Habana 8: 288. 1871; Fl. Cub. 202.



5. **ISCHAEMUM** L. Sp. Pl. 1049. 1753.1. **Ischaemum rugosum** Salisb. Icon. Stirp. Rar. 1791.

Madruza, *Curtiss* 533, "Wet ground beside railroad."

A native of southeastern Asia, introduced in Cuba.

6. **MANISURIS** L. Mant. Pl. 2: 164, 300. 1771.

Outer glume transversely wrinkled.....1. *M. loricata*.

Outer glume with three longitudinal furrows.....2. *M. impressa*.

1. **Manisuris loricata** (Trin.) Kuntze, Rev. Gen. Pl. 2: 780. 1891.

*Rottboellia loricata* Trin. Mem. Acad. Petersb. VI. 2: 250. 1833.

*Rottboellia filifolia* Wright, Anal. Acad. Cienc. Habana 8: 209. 1871; Fl. Cub. 200.

Herradura, *Baker* HC 2963, *Baker & Abarca* HC 4181, *Tracy* 9059, *Hitchcock* in 1906; *Dayaniguas, Wright* 3905.

Trinius's type specimen, which comes from Serra da Lapa, Brazil, has transversely rugose outer glumes, as in the Wright specimen.

2. **Manisuris impressa** (Griseb.) Kuntze, Rev. Gen. Pl. 2: 780. 1891.

*Rottboellia impressa* Griseb. Cat. Pl. Cub. 235. 1866.

El Salado, *Wright* 3904.

The type specimen in Grisebach's herbarium is accompanied by the printed blank label with the year 1865, but no locality. The label also bears the secondary number 201.

The specimen in the Sauvalle Herbarium is from El Salado and is numbered 3904. The Wright specimen in the National Herbarium is numbered 3904 upon an 1865 label like that of the type. These may be all of the same collection.

7. **HACKELOCHLOA** Kuntze, Rev. Gen. Pl. 2: 776. 1891.1. **Hackelochloa granularis** (L.) Kuntze, Rev. Gen. Pl. 2: 776. 1891.

*Cenchrus granularis* L. Mant. 2: 575. 1771.

*Manisuris granularis* Sw. Prod. 25. 1788.

Punta Brava, *Baker* HC 4047; Madruza, *Shafer* 22, 65; Isle of Pines, *Palmer & Riley* 1084, 1092, *Curtiss* 493; Habana, *Leon* 213; La Magdalena, *Baker* 6; without locality, *Wright* 1553 in 1865; Herradura, *Tracy* 9100. 9101.

The Grisebach specimen is *Wright* 1553, collected in eastern Cuba, 1859. Wright's 1553 in the Gray Herbarium is from "open grassy places at Saltadera, Sept. 11."

8. **TRACHYPOGON** Nees, Agrost. Bras. 341. 1829.

Awn appressed-pubescent.....1. *T. filifolius*.

Awn strongly plumose.....2. *T. gouini*.

1. **Trachypogon filifolius** (Hack.)

*Trachypogon polymorphus*  $\beta$  *filifolius* Hack. in DC. Mon. Phan. 6: 325. 1889.

In small tufts in pebbly pinales,<sup>a</sup> October, Pinar del Rio, *Wright* 3893; in large tufts, low damp pinales,<sup>a</sup> Pinar del Rio, *Wright* 3892; Herradura, *Baker* HC 2155.

This species is characterized by the elongated, closely convolute blades, the single racemes, and the erect awn 4 cm. long, short-pilose below, and by being glabrous throughout, except the slightly barbed nodes. Culm 100 to 150 cm. tall.

2. **Trachypogon gouini** Fourn. Mex. Pl. 2: 66. 1886.

Torteleza de la Cabana, *Baker & Van Hermann* HC without number; San Francisco de Paula near Habana, *Leon* 209; Habana, *Leon* 300; Tricornia, *Tracy* 9086.

Awn 7 to 8 cm. long, very plumose to the tip.

<sup>a</sup> Pine woods.

9. *ANDROPOGON* L. Sp. Pl. 1045. 1753.

- Racemes numerous in a leafless terminal panicle ..... 7. *A. leucopogon*.  
 Racemes 1 to 4, solitary or fascicled from spathes.  
   Racemes solitary.  
     Spikelets awnless ..... 11. *A. spathiflorus*.  
     Spikelets awned.  
       Outer glume of sterile spikelet conspicuous and bract-like ..... 4. *A. fastigiatus*.  
       Outer glume not conspicuous.  
         Plants annual; racemes delicate ..... 2. *A. brevifolius*.  
         Plants perennial; racemes not delicate.  
           Racemes cylindrical, stiff and spike-like.  
             Sterile pedicel ciliate its entire length; spikelets 5 to 6 mm. long ..... 10. *A. semiberbis*.  
             Sterile pedicel ciliate only at apex; spikelets 4 mm. long ..... 12. *A. tener*.  
           Racemes zigzag, axis lax and slender; spikelets about 3 mm. long.  
             Racemes conspicuously villous ..... 6. *A. gracilis*.  
             Racemes sparsely villous, spikelets about 6 mm. long ..... 3. *A. cubensis*.  
 Racemes 2 to 4 from each spathe.  
   Spathes numerous in a large corymb.  
     Spikelets awnless ..... 1. *A. bicornis*.  
     Spikelets long-awned ..... 5. *A. glomeratus*.  
 Spathes scattered or the inflorescence naked and terminal.  
   Racemes shorter than the spathe ..... 13. *A. virginicus*.  
   Racemes naked, terminal.  
     Spikelets awned ..... 9. *A. nashianus*.  
     Spikelets awnless ..... 8. *A. leucostachys*.

1. *Andropogon bicornis* L. Sp. Pl. 1046. 1753.

Arroyo Galiano, *O'Donovan* HC 5217; Santiago de las Vegas, *Wilson* 439; Pinar del Rio, *Palmer & Riley* 86; Isle of Pines, *Curtiss* 294; Retiro, in Savannas, *Wright* 3902; El Guama, *Palmer & Riley* 95; Nueva Gerona, *Palmer & Riley* 1125; without locality (1865) *Wright* 1555; Herradura, *Hitchcock* in 1906; Cienfuegos, *Combs* 265 in Gray Herbarium; Madruga, *Britton & Shafer* 773 in Herb. N. Y. Bot. Gard.

Wright's 770 from eastern Cuba (1859) is *A. bicornis* as shown by the specimen in Grisebach's herbarium.

Wright's 1555 as distributed consists in part of *Andropogon bicornis* and in part of *A. glomeratus*. The latter is distinguished by the long-awned spikelets.

2. *Andropogon brevifolius* Sw. Prod. 26. 1788.

Madruga, *Curtiss* 530; without locality, *Wright* 1558; Herradura, *Hitchcock* in 1906. The Wright specimen in the National Herbarium bears a blank label of 1865. No. 1558 in the Grisebach Herbarium is from eastern Cuba, 1859, but the plant is *A. tener* (there has probably been some misplacement of labels here). In the latter herbarium is a specimen from western Cuba, 1863, with the secondary number 925, upon which Grisebach has marked "1558." One sheet of *Wright* 1558 in the Gray Herbarium is *A. tener*, the other *A. brevifolius*, from "Pinales San Diego de Baños, Nov. 16."

3. *Andropogon cubensis* Hack. Flora 68: 121. 1885.

Without locality, *Wright* 3898.

This number was not seen by Grisebach, but is listed in Sauvalle's Flora Cubana without specific name.

4. *Andropogon fastigiatus* Sw. Prod. 26. 1788.

Dry savannas October 26. Wright 3483.

No. 3483 of Wright, 1865, is accompanied by two supplementary labels, "Savannas, San Cristobal, Nov.," and "Culms few or single, sandy pine woods, Pinar del Rio, Dec." The Grisebach specimen of this is from "Cub. occ. 1863" and bears the secondary number "921=3483." No. 3485 [error for 3483?] in the Gray Herbarium was collected by Wright in 1860-64 in "sandy pine woods, Asiento Viejo, Los Remales, Dec. 2."

5. *Andropogon glomeratus* (Walt.) B.S.P. Prel. Cat. N. Y. 67. 1888.

*Cinna glomerata* Walt. Fl. Car. 59. 1788.

*Andropogon macrourum* Michx. Fl. Bor. Amer. 1: 56. 1803.

Hanabana, Wright 1555; Isle of Pines, Curtiss 294, Taylor 18 in Herb. N. Y. Bot. Gard.; Batabano, Shafer 224; Habana, Schott 103; Guanabacoa, Leon 565, 572; Santiago de las Vegas, Wilson 2207 in Herb. N. Y. Bot. Gard.; Matanzas, Britton & Wilson 83, 94 in Herb. N. Y. Bot. Gard.; Maraguana, Wilson 7553 in Herb. N. Y. Bot. Gard.

Wright's 1555 in the National Herbarium is *A. bicornis*. The specimen in the Grisebach Herbarium with this number is *A. glomeratus*, but it is from eastern Cuba, collected in 1859. In the Gray Herbarium one sheet of Wright 1555 (1859) is *A. glomeratus*, another (1865) is *A. bicornis*.

6. *Andropogon gracilis* Spreng. Syst. 1: 284. 1825.

*Schizachyrium gracile* Nash in Small, Fl. Southeast. U. S. 60. 1903.

Wright 3484 [3480 in Sauv. Fl. Cub.] without data. Isle of Pines, Curtiss 380, Taylor 17; Buena Vista, Shafer in 1903; Herradura, Baker & Dimmock HC 4829, Tracy 9067; Candelaria, Earle & Wilson HC 1637; Calvario, Leon 562.

Wright's 3484 in the Grisebach Herbarium has a blank label of 1860-64, but is without other data. The Wright specimen of this species in the National Herbarium has a blank label of 1865, with the number 204 and also a tag in Wright's handwriting, "Pine woods, Cagalbana, Apr. 17." Wright's 1557, in the Grisebach Herbarium, "Cub. or." in 1859, is also *A. gracilis*. This species was described under *Andropogon scoparius* Michx. in Sagra's History of Cuba.<sup>a</sup>

7. *Andropogon leucopogon* Nees, Linnaea 19: 694. 1847.

Isle of Pines, Curtiss 382; Wright 1556 in Grisebach Herbarium.

In the Grisebach Herbarium and in the Gray Herbarium Wright 1556 is labeled as collected in eastern Cuba in 1859. Curtiss's specimen was distributed under an unpublished name.

8. *Andropogon leucostachys* H.B.K. Nov. Gen. & Sp. 1: 187. 1816.

*Andropogon domingensis* Roem. & Schult. Syst. 2: 809. 1817.

Isle of Pines, Curtiss 314, Taylor 16; Madruga, Baker HC 3458; Herradura, Earle HC 3111, Tracy 9046, Consolacion del Sur, Palmer & Riley 480; bushy savannas, Hanabana, May 17, Wright 3900.

Grisebach's specimen of this has an 1865 label with the secondary number 202.

9. *Andropogon nasnianus* sp. nov.

Culms solitary or few in a cluster, simple, slender, erect, glabrous, 30 to 45 cm. high, nodes glabrous; sheaths glabrous or sparsely pilose toward the summit, much shorter than the elongated internodes, broader at the summit than the base of the

<sup>a</sup> Rich. in Sagra, Hist. Cub. 11: 320. 1850. The types of the grasses described by Richard in this work are at the Museum d'Histoire Naturelle at Paris. The types of *Panicum* were examined by the writer in the spring of 1907. Fragments from the types of five other species were later sent to the National Herbarium through the kindness of Director Le Comte.

blade thus forming more or less of a shoulder; blades narrow, folded, appressed, glabrous, 1 to 4 cm. long, 1 mm. wide, the basal as much as 10 cm. long, the uppermost reduced to points 1 to 3 mm. long; inflorescence at the summit of the naked culm, the peduncle long-exserted from the uppermost sheath; racemes in pairs 3 to 4 cm. long, very villous with tawny hairs 5 to 7 mm. long from the rachis and the sterile pedicel; sessile spikelets 3 to 4 mm. long, as long as or slightly longer than the internodes of the rachis; first glume nerveless between the scabrous keels, second glume slightly shorter than the first, sterile and fertile lemmas hyaline, slightly shorter than the second glume, the fertile lemma bearing an awn which extends 10 to 15 mm. beyond the spikelet; stamen 1; sterile pedicel 3 mm. long, bearing an involute scale 1 to 2 mm. long.

Type, Cuba, *Wright* 3899, no. 35320 in U. S. National Herbarium.

Sandy pine woods, western Cuba. In addition to the type this species is represented by: Herradura, *Hitchcock* in 1906, *Tracy* 9069.

The specimen of *Wright* 3899 in the Sauvalle Herbarium is labeled "Sandy pine woods, Pinar del Rio. Sept. Culms few or single, scattering."

This species is named for Mr. George V. Nash, who, while studying the species of *Andropogon* in the National Herbarium, suggested that the above-mentioned specimens did not belong to *A. leucostachys*, to which they had been referred. The species is allied to *A. leucostachys* H. B. K. and *A. subtenuis* Nash.

10. *Andropogon semiberbis* (Nees) Kunth, Enum. 1: 489. 1833.

*Schizachyrium semiberbe* Nees, Agrost. Bras. 336. 1829.

*Wright* 3891 (in 1865).

11. *Andropogon spathiflorus* (Nees) Kunth, Enum. 1: 496. 1833.

*Hypogymium spathiflorum* Nees, Agrost. Bras. 366. 1829.

*Anatherum spathiflorum* Griseb. Cat. Pl. Cub. 236. 1866.

*Wright* 3481; Herradura, *Baker & Dimmock* HC 4814; Isle of Pines, *Curtiss* 460, *Taylor* 23.

The Sauvalle specimen has two labels, "Savannas Dayaniguas Sept." and "Pinales, Dayaniguas Sept." Another sheet has a blank label, "3480 *Anatherum inerme* Gris." In the Grisebach Herbarium are two sheets of this, one marked 3481 on an 1860-64 label, and another marked "899=3481, Cub. occ. 1863." The specimen in the National Herbarium with the number 3481 has this on an 1865 label.

In the Grisebach Herbarium there are two other sheets of this species, marked *Anatherum inerme* Griseb., "3480 Cuba 1860-64," and "898=3480, Cub. occ. 1863." I have not seen the type of *Anatherum inerme* (Steud.) Griseb.<sup>a</sup> (*Andropogon inermis* Steud.)<sup>b</sup>, which is from Venezuela, but Hackel places it under *Andropogon spathiflorus* as variety *inermis*.<sup>c</sup> I do not see that *Wright's* 3480 differs from 3481. Nees's type at Munich is the same. One sheet of this species in the Gray Herbarium is marked "3480=3481" and is from "pinales (wet), Los Almacigos, July 29;" another from the same locality is marked "3481=3480."

12. *Andropogon tener* (Nees) Kunth, Rev. Gram. 2: 565. 1832.

*Schizachyrium tenerum* Nees, Agrost. Bras. 336. 1829.

*Wright* 3482; Herradura, *Tracy* 9065.

Grisebach's specimen is labeled "Cub. occ. 1863" and is numbered "914=3482." The *Wright* specimen in the National Herbarium has an 1865 label. *Wright's* 3482 in the Gray Herbarium is from "savannas, Almacigos, July 25." One sheet of *Wright's* 1558 in the Gray Herbarium is this species, the other is *A. brevifolius*.

13. *Andropogon virginicus* L. Sp. Pl. 1046. 1753.

*Wright* 3901; Santiago de las Vegas, *Baker & Wilson* HC 599; Guanabacoa, *Leon* 193.

The Sauvalle specimen has no data. The *Wright* specimen in the National Herbarium bears an 1865 label.

<sup>a</sup> Cat. Pl. Cub. 236. 1866.

<sup>c</sup> Mart. Fl. Bras. 2: 296. 1883.

<sup>b</sup> Syn. Pl. Glum. 1: 390. 1854.

10. *HOLCUS* L. Sp. Pl. 1047. 1753.<sup>a</sup>1. *Holcus halepensis* L. Sp. Pl. 2: 1047. 1753.

*Andropogon halepensis* Brot. Fl. Lusit. 1: 89. 1804.

*Sorghum halepense* Pers. Syn. 1: 101. 1805.

Habana, *Curtiss* 561, *Leon* 271; Santiago de las Vegas, *Baker* HC 503, *Hitchcock* in 1906; Guanajay, *Palmer & Riley* 664, 815; without data, *Wright* 3488; Vedado, *Leon* 424.

Wright's 3488 in the Grisebach Herbarium bears the data, "Cub. or. 1860-64, fields near Matanzas."

11. *SORGHASTRUM* Nash in Britton, Man. 71. 1901.<sup>b</sup>

Awn 10 to 15 mm. long.....1. *S. francavillanum*.

Awn not over 2 mm. long.....2. *S. setosum*.

1. *Sorghastrum francavillanum* (Fourn.).

*Andropogon francavillanus* Fourn. Mex. Pl. 2: 56. 1886.

Pinar del Rio, *Wright* 3896; Herradura, *Baker* HC 2179.

The Sauvalle specimen has two labels, "Sandy pine woods Oct.," and "Low savannas and pinales Sept." The Wright specimen in the National Herbarium has an 1865 label. This species has a loose panicle, with slender branches; the spikelets are about 5 mm. long, light brown, sparsely pilose on the lower half; the pedicel of the upper spikelet about 4 mm. long, awn 10 to 15 mm. long, once, or more or less twice, geniculate; blades long and folded or convolute, about 3 mm. wide. I have not seen Fournier's type of this, but his description applies to the Cuban plant.

2. *Sorghastrum setosum* (Griseb.).

*Andropogon setosus* Griseb. Cat. Pl. Cub. 235. 1866.

*Wright* 3897.

The specimen in Grisebach's herbarium, which is the type, has a blank label of 1865 and bears the secondary number 208. The Sauvalle Herbarium contains a specimen accompanied by a similar label with no. "208" and a second of the same kind, with no. "3897" and also a label with habitat, "Bushy savannas, Hanabana, June 1." This is a duplicate type. Wright's 3897 in the Gray Herbarium is from "Bushy savannas, Hanabana, June 6."

The inflorescence is comparatively dense; the spikelets smaller than in the preceding, only about 3 to 3.5 mm. long, long-pilose all over; pedicel of the upper spikelet 2 to 3 mm. long; awn none or short and exserted 1 to 2 mm.; blades flat, 5 mm. wide, about 15 cm. long.

12. *RHAPHIS* Lour. Fl. Cochinch. 552. 1790.1. *Rhaphis pauciflora* (Chapm.) Nash in Small, Fl. Southeast. U. S. 67. 1903.

*Sorghum pauciflorum* Chapm. Bot. Gaz. 3: 20. 1878.

Sandy pine woods, Pinar del Rio, *Wright* 3895; Isle of Pines, *Taylor* 46.

This is listed in Sauvalle's Flora Cubana as "*Andropogon* (*Chrysopogon*) *wrightii* Munro," but is without description. Under this are mentioned nos. 293 and 263.

<sup>a</sup> *Holcus sorghum* L. must be considered the type of the genus *Holcus* since it is the most important economic species of the genus and further, since, in the fifth edition of his *Genera Plantarum*, Linnaeus refers to the genus *Sorghum* Michx [eli] as a synonym of *Holcus*.

<sup>b</sup> *Poranthera* Raf. (Ser. Bull. Bot. 1: 221. 1830) has for its type *Andropogon nutans* L., but the name was previously used for a genus of Euphorbiaceae (Rudge, Trans. Linn. Soc. 10: 302. 1811). The type species of *Sorghastrum* Nash is *Andropogon avenaceum* Michx., which is the same as *A. nutans* L.

The latter I have not seen. Wright's 293 is in the Gray Herbarium, labeled as above, with the herbarium name of Munro.

### 13. *HETEROPOGON* Pers. Syn. 2: 533. 1807.

#### 1. *Heteropogon contortus* (L.) Roem. & Schult. Syst. 2: 836. 1817.

*Andropogon contortus* L. Sp. Pl. 2: 1045. 1753.

*Andropogon secundus* Willd.; Nees, Agrost. Bras. 364. 1829, in note.

Eastern Cuba, Wright 1559.

This specimen is in the Grisebach Herbarium and is listed in Grisebach's catalogue of Cuba plants as *Andropogon* (*Heteropogon*) *secundus*. (*Heteropogon secundus* Presl is a species of *Trachypogon*.) Sauvalle lists no. 1559 as *Andropogon contortus*, but there is no specimen of this number in the Sauvalle Herbarium. One is found, however, in the Gray Herbarium.

### 14. *NAZIA* Adans. Fam. Pl. 2: 31, 581. 1763.

#### 1. *Nazia aliena* (Spreng.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 17: 28. 1899.

*Lappago aliena* Spreng. Neue Entd. 3: 15. 1822.

Wright 3489, without data.

The Grisebach specimen was collected "1860-64." This is listed in Sauvalle's Flora Cubana as *Lappago racemosa*.

### 15. *ANTHEPHORA* Schreb. Besch. Gräs. 2: 105. *pl.* 44. 1810.

#### 1. *Antheophora hermaphrodita* (L.) Kuntze, Rev. Gen. Pl. 2: 759. 1891.

*Tripsacum hermaphroditum* L. Syst. ed. 10, 2: 1261. 1759.

*Antheophora elegans* Schreb. Besch. Gräs. 2: 105. 1810.

In sand along the shore La Palma Sola, Aug. 7, Wright 3890; Santiago de las Vegas, Van Hermann HC 2694, Hitchcock in 1906; Herradura, Baker HC 2691; La Magdalena, Baker HC 3634; Cienfuegos, Combs 257 in Gray Herbarium.

This is listed in Sauvalle's Flora Cubana as 3870. The Sauvalle specimen is marked 3890, as is the specimen in the National Herbarium. The former specimen is accompanied by a second label with the secondary number 308, which is the only number with the Grisebach specimen.

### 16. *ARUNDINELLA* Raddi, Agrost. Bras. 37. *pl.* 1. *f.* 3. 1823.

Awn bent, tightly twisted below.....2. *A. martinicensis*.

Awn bent, but not tightly twisted.

Blades flat, over 1 cm. wide; panicle dense, 30 cm. or more

long.....1. *A. deppeana*.

Blades more or less folded, less than 1 cm. wide; panicle

loose, not elongated.....3. *A. peruviana*.

#### 1. *Arundinella deppeana* Nees, Bonplandia 3: 84. 1855.

*Arundinella phragmitoides* Griseb. Cat. Pl. Cub. 234. 1866.

Wright 3479; Madrugá, Curtiss 662, Britton & Shafer 647 in Herb. N. Y. Bot. Gard.; Pinar del Río, Palmer & Riley 70; Shafer 304 in Herb. N. Y. Bot. Gard.; without locality, Otto 268.

Grisebach's specimen is from western Cuba in 1863 and is numbered "933=3479." I have not seen Nees's type, "*Seemann* n. 428, Panama." Nees describes the awn as 6 lines long, strongly geniculate in the middle and not twisted. This can only apply to *A. phragmitoides* and to *A. peruviana*. Nees further states that the leaves are smooth and one-half inch wide, and the panicle over a foot long and 4 inches thick. This applies best to *A. phragmitoides*, though the blades are usually more or less pilose. Specimens in the National Herbarium are as follows: Mexico: Lieb-



mann 629, 630; *Langlassé* 608; *C. T. Smith* 1892; *Botteri* 730, 731, 734; *Palmer* 1264, 1920. Guatemala: *Heyde & Lux* 3907; *Maxon & Hay* 3526; *Rock* in 1887; World's Fair Commission in 1893. Salvador: *Renson* 207. Costa Rica: *Tonduz* 9211.

2. *Arundinella martinicensis* Trin. Gram. Pan. 62. 1826.

*Arundinella pallida* Nees, Agrost. Bras. 465. 1829.

*Thysanachne scoparia* Presl, Rel. Haenk. 253. 1830.

*Wright* 3478.

The Grisebach specimen is from eastern Cuba in 1860 and numbered "113=3478." Wright's 3478 in the Gray Herbarium is from San Juan de Buenavista, Nov. 21. These were compared with the type of Nees at Munich and that of Trinius at St. Petersburg (from Martinique, *Sieber* 262). This species has an elongated dense panicle, more or less folded blades, the bent awn twisted below. It ranges from Cuba and Mexico to Brazil, and is represented in the National Herbarium by the following: Porto Rico: *Heller* 934, 4355, 6256; *Sintenis* 361, 5797; *Barrett* 101. Santo Domingo: *Wright, Parry & Brummel* 626. Jamaica: *Eggers* 3514. Mexico: *Palmer* 434. Costa Rica: *Pittier* 11005; *Tonduz* 3672. Brazil: *Glaziov* 17433; *Regnell* 1414 (III).

*Thysanachne scoparia* Presl was published in the *Symbolae Botanicae*, the title page date of which is 1832 and which, hence, is later than the *Reliquiae Haenkeanae*. But the part containing the above species must have been published earlier, for in the latter work<sup>a</sup> is cited "*T. scoparia*. Presl de *thysanachne*, 1829. cum icone." There appears to be no such work by Presl except the portion of the *Symbolae* (pages 11 and 12 and pl. 6) where *Thysanachne* and *T. scoparia* are described as if they were there originally published. The species is based on *Sieber* 264 from Martinique. Presl's type from Mexico was examined at Prague.

Pilger<sup>b</sup> refers the Porto Rico species to *A. hispida* (Willd.) Kuntze (*Andropogon hispidus* Willd.), to which he also refers *A. brasiliensis* Raddi. I have not seen the type of either of the last two species, but in Trinius's herbarium is the type of *Goldbachia mikani* Trin., which is included by Pilger in the list of synonyms of *A. hispida*. This I consider distinct from *A. pallida*, as did Nees,<sup>c</sup> and it is what I take to be *A. brasiliensis* Raddi. This is also the *A. brasiliensis* of Hackel in Martius's *Flora Brasiliensis*, as indicated by plate 38 and by specimens so named received from Professor Hackel. The spikelets are smaller and the awn shorter, sometimes scarcely exerted. This species is represented in the National Herbarium by the following: Mexico: *Liebmann* 622, 635. Colombia: *Pittier* 1527. British Guiana: Mount Roraima Exped. 254. Brazil: *Glaziov* 17921, 20567 a; *Henschen* in 1868, *Dusén* 3875. Uruguay: *Archareleta*.

3. *Arundinella peruviana* (Presl) Steud. Syn. Pl. Glum. 1: 115. 1854.

*Thysanachne peruviana* Presl, Rel. Haenk. 253. 1830.

*Arundinella cubensis* Griseb. Mem. Amer. Acad. n. ser. 8: 533. 1862.<sup>d</sup>

*Arundinella crinita* Trin. Linnaea 10: 299. 1836.

*Wright* 1552.

Sheaths and blades pilose, the latter narrow and more or less folded, usually less than 0.5 cm. wide; panicle rather loose, not elongated as in *A. martinicensis*; awn slender and bowed back like a shepherd's crook, but not twisted. The type of *A. cubensis* from eastern Cuba, no. 1552 in 1859, is in the Grisebach Herbarium. Another specimen also from eastern Cuba, 1860, is numbered "115=1552."

The types above cited, namely, those of Presl at Prague, Grisebach at Göttingen, and Trinius at St. Petersburg, agree with each other and are well characterized by the shape of the awn. Additional specimens in the National Herbarium are as follows: Mexico: *Liebmann* 621, 625, 632, 634; *Bourgeau* 1660, 2223; *Palmer* 12, 526,

<sup>a</sup> Rel. Haenk. 253.

<sup>c</sup> Agrost. Bras. 465. 1829.

<sup>b</sup> In Urb. Symb. Antill. 4: 80. 1903.

<sup>d</sup> Pl. Wright. 2.

652; *Pringle* 3133. Guatemala: *Cook & Griggs* 691. Costa Rica: *Pittier* 2407, 11246; *Biolley* 7469; *Tonduz* 4867. Brazil: *Commis. Geogr. S. Paulc* 2800.

In the collection of Haenke at the herbarium of the German University at Prague there are, under *Thysanachne peruviana*, two specimens. One is accompanied by the label, "Pernan. mont. guanoc. Hanke." This specimen corresponds to Presl's description of this species and agrees with a duplicate in the Bernhardt Herbarium at the Missouri Botanical Garden figured by Scribner.<sup>a</sup> The other specimen is *A. martinicensis* Trin.

17. **TRISCENIA** Griseb. Mem. Amer. Acad. n. ser. 8: 534. 1862.

1. *Triscenia ovina* Griseb. Mem. Amer. Acad. n. ser. 8: 534. 1862.

Banks of creeks, May 28. *Wright* 756.

The Grisebach specimen is from eastern Cuba in 1859, no. 756.

Grisebach<sup>b</sup> cites this number also under *Isachne leersoides*. This appears to be an error, as in Grisebach's herbarium this number occurs only with *Triscenia ovina*. Wright's 756 in the Gray Herbarium is from "banks of Pinal Creek in small dense tufts, Monte Verde, Aug. 10, 1859."

18. **REIMAROCHLOA** gen. nov.

Spikelets lanceolate, acuminate, solitary, subsessile along one side of a flattened narrow rachis (the back of the fertile lemma turned toward it), forming few to several slender racemes, approximate at the summit of the culm, spreading or reflexed at maturity; glumes obsolete except in the terminal spikelet in which one glume is frequently present; sterile lemma exceeding the fruit; fertile lemma scarcely indurated, faintly nerved, long-acuminate, inrolled at the base only, the palea of similar texture, free nearly half its length.

Perennials of the tropics and subtropics of the Western Hemisphere.

The genus *Reimaria* as established by Flügge on the single differentiating character "uniglumis," included three species, the first two of which, *R. candida* and *R. elegans*, differ from *Paspalum* only in having spikelets without glumes, a character which is unreliable in this group of Paniceae. The third species, *R. acuta*, together with those added to *Reimaria* by later authors, constitutes a distinct genus distinguished by the characters in the diagnosis above. Considering that Flügge's three species are not congeneric, but that the first two on the one hand and the third on the other must be separated, it is necessary that the name *Reimaria* go with the larger group.<sup>c</sup> *Reimaria* then becomes a synonym of *Paspalum*, or if the glumeless species, *P. candidum* H. B. K., *P. pulchellum* H. B. K., *P. elongatum* Griseb., etc., be considered generically distinct, the name would apply to this group. For *R. acuta* and its allied species the above name is proposed with *Reimaria acuta* Flügge as the type: **Reimarochloa acuta** (Flügge). *Paspalum vaginatum* Sw. and *P. distichum* L. (in which both glumes are occasionally present) in habit and texture of the acute fruits show a closer affinity to this genus than do the glumeless species mentioned above.

Spikelets about 2 mm. long.....1. *R. brasiliensis*.  
Spikelets about 5 mm. long.....2. *R. oligostachya*.

1. **Reimarochloa brasiliensis** (Spreng.).

*Agrostis brasiliensis* Spreng. Nov. Prov. Hal. 45. 1819.

*Reimaria brasiliensis* Schlecht. Bot. Zeit. 10: 17. 1852.

*Panicum oxanthum* Steud. Syn. Pl. Glum. 1: 41. 1854.

*Wright* 3437; Isle of Pines, *Curtiss* 497.

Grisebach's specimen of this number is from "savannas, Hanabana, May 22." Another specimen in his herbarium from "low wet ground around ponds, Hanabana"

<sup>a</sup> Rep. Mo. Bot. Gard. 10: pl. 6. 1899.

<sup>b</sup> Cat. Pl. Cub. 234. 1866.

<sup>c</sup> American Code, Canon 15 (Bull. Torr. Club 31: 175. 1904); Vienna Code, Art. 45.



bears the secondary number 206. The specimen in the Gray Herbarium is labeled, "Wet savannas, Candelaria, June 5, 1860-64." The type of *Panicum oxyanthum* Steud. labeled "Ins. St. Domingo, Legit Poiteau 1802 cf. hrbr Delessert 54" in the museum at Paris, is a small specimen of this species; that in the Delessert Herbarium is a good specimen.

2. *Reimarochloa oligostachya* (Munro).

*Reimaria oligostachya* Munro; Benth. Journ. Linn. Soc. **19**: 34. 1882.

Wright 3854 in National Herbarium.

This number of Wright's is mentioned in the original description, though the type is *Curtiss* 3566 from Florida. The specimen in the Sauvalle Herbarium with the number 3854 is *Paspalum vaginatum* Sw. In the Grisebach Herbarium is a specimen of *Reimarochloa oligostachya* labeled "Damp ground around ponds Hana-bana," 1865, and bearing the secondary number 180. The sheet of Wright 3854 in the Gray Herbarium bears two plants of *R. oligostachya* and one of *Paspalum distichum*.

**19. PASPALUM** L. Syst. ed. 10, 855. 1759.

Rachis dilated and membranaceous..... 9. *P. dissectum*.

Rachis not dilated and membranaceous.

Racemes terminal and also from the uppermost sheath.

Blades pubescent on both surfaces..... 7. *P. debile*.

Blades glabrous or nearly so, often ciliate on margins.

Blades ciliate, 4 to 5 mm. wide.....25. *P. propinquum*.

Blades not ciliate.

Blades less than 2 mm. wide; first glume  
obsolete.....27. *P. rigidifolium*.

Blades about 1 cm. wide; first glume present...23. *P. pedunculatum*.

Racemes terminal only.

Racemes in pairs—that is, normally 2 and approxi-  
mate.

Plants with creeping rootstocks.

Spikelets pubescent on convex surface.....10. *P. distichum*.

Spikelets glabrous on convex surface.....30. *P. vaginatum*.

Plants without creeping rootstocks.

Both glumes obsolete.....26. *P. pulchellum*.

First glume only obsolete.

Spikelets circular 1.5 mm. long or less.

Spikelets papillose or nearly glabrous...22. *P. papillosum*.

Spikelets villous on the margins ..... 6. *P. conjugatum*.

Spikelets lanceolate or elliptical, 2 mm.

long or more.

Spikelets loosely imbricated; spikes

ascending.....15. *P. lineare*.

Spikelets densely imbricated; spikes

spreading.

Spikelets 2 mm. long.....18. *P. minus*.

Spikelets 3 mm. long.....20. *P. notatum*.

Racemes 1 to several; if 2, the lower at some distance  
below the terminal and the number not constant.

Racemes usually 1, sometimes 2.

Spikelets transversely wrinkled.

Blades involute, glabrous, elongated, 40

to 60 cm. long.....12. *P. filiforme*.

Blades flat, pubescent, 5 to 15 cm. long...19. *P. nanum*.

- Spikelets not transversely wrinkled.  
 Pubescence glandular..... 5. *P. clavuliferum*.  
 Pubescence if present not glandular.  
 Spikelets about 1 mm. long.....29. *P. rupestre*.  
 Spikelets 2 to 3 mm. long.  
 Blades short, 10 cm. long, villous..28. *P. rottboelliioides*.  
 Blades elongated 30 to 50 cm.  
 long, glabrous..... 1. *P. alterniflorum*.  
 Racemes more than 1, often numerous.  
 First glume present..... 4. *P. ciliiferum*.  
 First glume obsolete.  
 Sterile lemma transversely wrinkled;  
 spikelets brown.  
 Spikelets obovate.....24. *P. plicatulum*.  
 Spikelets elliptical.....11. *P. elatum*.  
 Sterile lemma not transversely wrinkled.  
 Racemes few, mostly 2 to 4.  
 Spikelets flattened.....16. *P. lividum*.  
 Spikelets distinctly convex.  
 Spikelets pubescent.  
 Pubescence glandular... 2. *P. arenarium*.  
 Pubescence not glandular..... 3. *P. caespitosum*.  
 Spikelets glabrous.  
 Spikelets elliptical,  
 about 1 mm. wide ....13. *P. glabrum*.  
 Spikelets circular, about  
 2 mm. wide.....14. *P. hemi-cryptum*.  
 Racemes numerous.  
 Spikelets pubescent.  
 Spikelets hemispherical,  
 slightly exceeding 1 mm.  
 long.....21. *P. paniculatum*.  
 Spikelets flatter, 2 mm. long..31. *P. virgatum*.  
 Spikelets glabrous.  
 Axis long-pilose..... 8. *P. densum*.  
 Axis not pilose.  
 Spikelets elliptical,  
 about 3 mm. long....32. *P. virgatum*  
*schreberianum*.  
 Spikelets obovate-circular,  
 2 to 2.5 mm. long..17. *P. millegrana*.

1. *Paspalum alterniflorum* Rich. in Sagra, Hist. Cub. 11: 299. 1850.

*Paspalum dolichophyllum* Hack. Inf. Est. Centr. Agron. Cuba 1: 409. 1906.

Wright 3841; Guanabacoa, Leon 117 in part; Habana, Tracy 9105, Baker, Tracy & Hasselbring in 1907, Leon 564, 585; Marianao, Leon 581. Calabazon, Baker & O'Donovan II C 4545; Matanzas, Rugel 894 in Herb. N. Y. Bot. Gard.

Grisebach's specimen of this species was collected in 1865 and is accompanied by the data, "In small dense tufts, low savannas, Hanabana, May 19." The sheet bears the secondary number 167. The Sauvalle specimen is accompanied by the two numbers, 3841 and 167, thus connecting the two. In the Grisebach Herbarium is a specimen of this collected in Cuba by Rugel and numbered 753a. Grisebach refers *a* to "Rug. 894" under this name. Richard's type is at Paris.

2. *Paspalum arenarium* Schrad.; Schult. Mant. 2: 172. 1824.

*Paspalum simpsoni* Nash, Bull. Torr. Club 24: 29. 1897.

*Wright* 3443 in part, in National Herbarium, and in Gray Herbarium.

Spikelets similar to those of *P. caespitosum* (*Wright* 3443, in part, in National Herbarium), but glandular-pubescent; leaves mostly near the base of the plant, the blades ciliate on the margins, otherwise glabrous, flat, less than 10 cm. long, 5 to 6 mm. wide; spikes 1 to 3.

From this *P. longepedunculatum* Le Conte of the southeastern United States differs in having glabrous spikelets and longer, thinner blades. *Pittier* 1847 from Honduras should also be referred to *P. arenarium*.

3. *Paspalum caespitosum* Flügge, Mon. Pasp. 161. 1810.

Low wet woods, Pinar del Rio, September, *Wright* 3443 in part; Cojimar, *Baker* HC 2899, 2903, *Hitchcock* in 1906; Tricornia, *Tracy* 9087, *Hitchcock* in 1906; Habana, *Leon* 268; Batabano, *Hitchcock* in 1906; Matanzas, *Britton* & *Wilson* 11, 236 in Herb. N. Y. Bot. Gard., *Britton* & *Shafer* 63 in Herb. N. Y. Bot. Gard.

Grisebach's specimens of this are labeled "910=3443" from western Cuba, 1863, and "97=3443" from eastern Cuba, 1860. A third "290=3444," collected in 1865, agrees with these and not with 3444 [see *P. clavuliferum* *Wright*]. There are two sheets of *Wright*'s specimens in the Gray Herbarium numbered 3444, of which one is *Paspalum clavuliferum*, the other *P. caespitosum*. The latter is labeled "In crevices of rocks in the channel of the river Santa Cruz, Aug. 27." *Wright*'s 3443 in the Gray Herbarium is labeled "Rocky ridges, Holguin-Barajagua, Aug. 21."

4. *Paspalum ciliiferum* (Nash).

*Dimorphostachys ciliifera* Nash in Small, Fl. Southeast. U. S. 78. 1903.

Arroyo Naranjo, *Leon* 587; Matanzas, *Britton* & *Wilson* 148; Madruga, *Britton* & *Shafer* 751, both in Herb. N. Y. Bot. Gard.

5. *Paspalum clavuliferum* *Wright*, Anal. Acad. Cienc. Habana 8: 203. 1871; Sauv. Fl. Cub. 195.

*Paspalum falcula* Doell in Mart. Fl. Bras. 2<sup>2</sup>: 60. 1877.

*Wright* 3444 in National Herbarium.

This resembles *P. papillosum* Spreng., but the spikes are usually solitary instead of in pairs and the spikelets obovate instead of orbicular. The type of this is in the Gray Herbarium. The plant in the Sauvalle Herbarium under this number is a different species, as are the two specimens in the Grisebach Herbarium which are said to be "=3444" (cf. *P. caespitosum* and *P. rupestre* of this list). *Salzmann*'s specimen in *Trinius*'s herbarium from Bahia, labeled *Paspalum horticola* *Salzm.*, belongs to this species. *Salzmann*'s name was mentioned as a synonym by *Steudel* under *P. papillosum*.<sup>a</sup> To *P. clavuliferum* may be referred *Pringle* 2359 and 11762 from Mexico, and *Smith* 175 from Colombia.

6. *Paspalum conjugatum* Berg. Act. Helv. 7: 129. 1772.

Roadsides, Hanabana, *Wright* 767; Herradura, *Baker* HC 2672, *Hitchcock* in 1906; mountains north of San Diego de los Baños, *Palmer* & *Riley* 541; Santiago de las Vegas, *Baker* HC 2658, 2659, *Wilson* 543, 1006, *Hitchcock* in 1906; Sagua, *Britton* & *Wilson* 265; valley of the St. Augustine, *Britton* & *Wilson* 510, 515; Guajay, *Wilson* 342; Habana, *Wilson* 1277, *Leon* 302. The following are in the herbarium of the New York Botanical Garden: Isle of Pines *Curtiss* in 1904; Santiago de Cuba, *Taylor* 146; Baracoa, *Underwood* & *Earle* 1162; Cuba, *Rugel* 788; Matanzas, *Rugel* 912.

7. *Paspalum debile* Michx. Fl. Bor. Amer. 1: 44. 1803.

*Paspalum villosissimum* Nash, Bull. Torr. Club 24: 40. 1897.

Herradura, *Hitchcock* in 1906.

<sup>a</sup> *Steud.* Syn. Pl. Glum. 1: 17. 1854.

8. *Paspalum densum* Poir. in Lam. Encycl. 5: 32. 1804.

Dense bunches in ponds, Pinar del Rio, September, Wright 3447.

There is a second specimen of this species in the Sauvalle Herbarium, without locality, erroneously numbered 3462. In the Grisebach Herbarium there are two specimens of this species, one from western Cuba, 1863, numbered "866=3447," the other from "Low wet savannas; Hanabana," 1865.

9. *Paspalum dissectum* (L.) L. Sp. Pl. ed. 2. 81. 1762.

*Panicum dissectum* L. Sp. Pl. 57. 1753.

*Paspalum membranaceum* Walt. Fl. Car. 75. 1788.

Low grounds around ponds, procumbent. Hanabana, June 10, Wright 169 [Secondary number].

The same number occurs in the Grisebach Herbarium. A second specimen of this species, from eastern Cuba, 1860, is numbered "98=3440." The specimen in the National Herbarium is numbered 3440. For a discussion of the type of *P. dissectum* L., see Contr. Nat. Herb. 12: 115. 1908.

10. *Paspalum distichum* L. Syst. Nat. ed. 10. 2: 855. 1759.

Wright 1546; Habana, Curtiss 764; Santiago de las Vegas, Baker & Wilson 385; Playa de Marianao, Palmer & Riley 848; Herradura, Tracy 9056; Isle of Pines, Curtiss in 1904; Matanzas, Britton & Wilson 67, both in Herb. N. Y. Bot. Gard.

Grisebach's specimen of Wright's 1546 is from eastern Cuba; a second specimen of the same species is from western Cuba, 1863, and is numbered "911=1546." In the National Herbarium is a sheet of Wright's with the secondary number 292 which is part this species and part *P. vaginatum* Sw.

11. *Paspalum elatum* Rich.; Doell in Mart. Fl. Bras. 2<sup>2</sup>: 78. 1877.

Wright 3843.

This specimen is referred to this species from description only, as no authentic specimens of *P. elatum* have been examined. It is a much taller grass than *P. plicatulum* Michx., which it resembles, with more elliptical and less convex spikelets.

12. *Paspalum filiforme* Sw. Prod. 22. 1788.

*Paspalum swartzianum* Flügge, Mon. Pasp. 96. 1810.

*Paspalum approximatum* Doell in Mart. Fl. Bras. 2<sup>2</sup>: 82. 1877.

In pastures forming tufts, Retiro, July, Wright 769; Isle of Pines, Curtiss 523, 374, Palmer & Riley 949; Guanabacoa, Hitchcock in 1906; Rincon, Britton & Wilson 477 in Herb. N. Y. Bot. Gard.

Grisebach's specimen of Wright 769 was collected, "1860-1864," "in the edge of woods, Hanabana, May 28." Another of his specimens with the secondary number 165, in 1865 is also from Hanabana, May 23, "in small tufts."

Doell <sup>a</sup> refers *P. filiforme* Sw. to *P. caespitosum* Flügge. This is not the plant that Swartz describes, as is shown by the original description in the Prodrum and the later amplified description in his Flora.<sup>b</sup> Swartz describes his plant as having a single spike, ovate spikelets, and filiforme leaves, while *P. caespitosum* has 3 to 5 spikes, oblong-obovate spikelets, and flat blades.

13. *Paspalum glabrum* Poir. in Lam. Encycl. 5: 30. 1804.

*Paspalum bakeri* Hack. Inf. Est. Centr. Agron. Cuba 1: 410. 1906.

Habana, Baker 1824; Tricornia, Hitchcock in 1906; without locality, Wright 298; Matanzas, Rugel 869 in Herb. N. Y. Bot. Gard.

In the Grisebach Herbarium is a specimen of *P. glabrum* labeled, "In small tufts, sand banks near the sea, Palma Sola, July 15," 1865, and bearing the secondary number

<sup>a</sup> Loc. cit.

<sup>b</sup> Fl. Ind. Occ. 1: 136. 1797.

298. This species is represented in the Gray Herbarium by *Wright* 3846, a number which is not mentioned in Sauvalle's *Flora Cubana*. *P. helleri* Nash<sup>a</sup> of Porto Rico differs in having somewhat smaller pubescent spikelets.

14. *Paspalum hemicryptum* Wright, Anal. Acad. Cienc. Habana 8: 204. 1871; Sauv. Fl. Cub. 196.

*Paspalum inops* Vasey, Contr. Nat. Herb. 1: 281. 1893.

Low savannas, El Salado, August, *Wright* 3847.

The type of *P. inops* Vasey (*Palmer* 592 from Guadalajara, Mexico, in the National Herbarium) agrees with *Wright's* type in the Gray Herbarium.

15. *Paspalum lineare* Trin. Gram. Pan. 99. 1826.

Herradura, *Baker* 3459; Isle of Pines, *Curtiss* 379.

The type in the Trinius Herbarium is from Brazil, collected by Langsdorff, and is included in the same cover with *P. angustifolium* Nees. Trinius published the latter name on the same page of the work cited, but preceding *P. lineare* on the page. The type is said to be from "Brazil (N. ab Esenb.)." The type specimen is labeled "*Paspalum angustifolium* N. ab Es. In Brasilia. Mis Auctore." This specimen, however, is not *P. lineare*, but has, as described, smaller spikelets with rugose transversely wrinkled glumes. *P. angustifolium* as described three years later<sup>b</sup> is the same as *P. lineare* Trin., while variety  $\beta$  is *P. angustifolium* as described by Trinius. Consequently *P. neesii* Kunth is a typonym of *P. angustifolium*, since Kunth changes the name of the latter on account of the earlier *P. angustifolium* Le Conte, but the name does not apply to the Cuba plant under consideration.

16. *Paspalum lividum* Trin.; Schlecht. Linnaea 2: 383. 1854.

Habana, *Leon* 272, 571, *Tracy* 9119; Marianao, *Leon* 588.

This Mexican species is probably a recent introduction into Cuba. The type from Hacienda de la Laguna, Mexico, *Schiede*, in the Trinius Herbarium, is included in the cover of *P. denticulatum* Trin., but the two specimens are not the same species. The latter has larger spikelets.

17. *Paspalum millegrana* Schrad.; Schult. Mant. 2: 175. 1824.<sup>c</sup>

*Paspalum underwoodii* Nash, Bull. Torr. Club 30: 375. 1903.

*Paspalum lentiginosum* Presl, err. det. Mez in Urban, Symb. Antill. 4: 82. 1903.

Habana, *Tracy* 9121; without locality, *Wright* 3840.

The Sauvalle specimen is also numbered 170. As I have not examined Schrader's type the reference to this is only provisional and based on description. Our specimens are the same as *P. vulnerans* Salzm., from Bahia, as distributed to the National Herbarium. Other specimens in the National Herbarium to be referred here are: Porto Rico: *Britton & Covell* 1449, *Heller* 4368, *Goll* 923, *Underwood & Griggs* 149. Jamaica: *Britton* 841 in Herb. N. Y. Bot. Gard.

18. *Paspalum minus* Fourn. Mex. Pl. 2: 6. 1886.

Herradura, *Baker & Abarca* HC 4180, *Tracy* 9093, *Hitchcock* in 1906; Isle of Pines, *Palmer & Riley*, 978; without locality, *Wright* 3438; Guanabacoa, *Leon* 117 in part; La Magdalena, *Baker* 2. The following are in the herbarium of the New York Botanical Garden: Sagua, *Britton & Wilson* in 1903; Pinar del Rio, *Shafer* 477; Isle of Pines, *Curtiss* in 1904.

These agree with the duplicate type in the National Herbarium (Mexico, *Bourgeau* 2298). The spikelets are about 2 mm. long. *Wright's* 3438 in the National Herbarium is partly this and partly *P. notatum*. Grisebach's specimen, from western Cuba, 1863, numbered "936=3438," is all *P. minus*. The other specimens in this cover

<sup>a</sup> Bull. Torr. Club 30: 376. 1903.

<sup>b</sup> Nees, Agrost. Bras. 64. 1829.

<sup>c</sup> The specific name as used by Schrader is a noun.

have spikelets 3 mm. long and are *P. notatum* (Jamaica, *Alexander*; Trinidad, *Sieber* 364, labeled *P. taphrophyllum* Steud.; Antigua, *Wulfschlaegel*). A part of *Wright* 3438 in the Torrey Herbarium is *P. minus* and a part is *P. notatum*.

19. *Paspalum nanum* Wright; Griseb. Cat. Pl. Cub. 230. 1866.

*Paspalum caudicatum* Wright, Anal. Acad. Cienc. Habana 8:205. 1871; Sauv. Fl. Cub. 196.

*Wright* 176 (secondary number); sandy pine woods, Pinar del Rio, October, *Wright* 3866; Herradura, *Hitchcock* in 1906; Isle of Pines, *Taylor* 40, *Curtiss* in 1904, both in Herb. N. Y. Bot. Gard.

The type of *P. nanum* is *Wright* 176 in the Grisebach Herbarium, collected in "Bushy savannas, Hanabana, June 1," 1865. This agrees with *Wright* 3866, the type of *P. caudicatum*, in the Gray Herbarium.

The specimen in the National Herbarium is numbered 3842. The specimen in the Grisebach Herbarium bears the label, "176. Bushy savannas. Hanabana, June 1."

Spikelets sent by Professor Le Comte<sup>a</sup> from the plant supposed to be the type of *Paspalum lindenianum* Rich.<sup>b</sup> show this plant to be the same as *P. nanum* Wright, but this species does not agree with Richard's description in so far as the blades are said to be glaucous and glabrous except the ciliate margins, while in *P. nanum* the blades are pubescent on the surface. Pending a further examination of the type the name *P. nanum* is retained.

20. *Paspalum notatum* Flügge, Mon. Pasp. 106. 1810.

Herradura, *Hitchcock* in 1906, *Baker* HC 2968; Arroyo Galiano, *O'Donovan* HC 5210; Isle of Pines, *Palmer & Riley* 1119; Lomas de Managua, *Baker & Wilson* HC 299; Habana, *Baker, Tracy & Hasselbring* HC 3097, *Tracy* 9118; Guines, *Leon* 117b; Matanzas, *Britton & Wilson* 444 in Herb. N. Y. Bot. Gard.

As stated above, a part of *Wright* 3438 in the National Herbarium is this species and a part is *P. minus* Fourn. The spikelets of the species as here understood are about 3 mm. long. The type has not been examined. The *Baker & Wilson* plant, HC 299, cited above, is larger than the other specimens, with spikelets 4 mm. long, and may be a distinct species. *Wright's* 3438 in the Gray Herbarium is *P. notatum*; it is labeled "Savannas Chirigote, July 11." This number in the Torrey Herbarium is part *P. notatum* and part *P. minus*.

21. *Paspalum paniculatum* L. Syst. Nat. ed. 10. 2: 855. 1759.

Savannas, Retiro, *Wright* 766; San Diego de los Baños, *Palmer & Riley* 544; El Guama, *Palmer & Riley* 179a; hills near Candelaria, *Earle & Wilson* HC 1625; Guines, *Leon* 579; Cienfuegos, *Combs* 295 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Matanzas, *Britton & Shafer* 576; Santiago de Cuba, *Taylor* 377; Jaguey, *Eggers* 5317.

Grisebach's specimen is from eastern Cuba, 1859, no. 766. *Nash*<sup>c</sup> applies this name to *Panicum fasciculatum* Sw., but as has been shown elsewhere<sup>d</sup> the name *Paspalum paniculatum* L. should be applied to the Linnaean plant, as heretofore, and not to the Sloane plate cited, through error, by Linnaeus.

22. *Paspalum papillosum* Spreng. Nov. Prov. Ital. 47. 1819.

*Paspalum pittieri* Hack. Oesterr. Bot. Zeitschr. 51: 233. 1901.

Low savannas, Chirigote, October 26, *Wright* 3844; Herradura, *Baker* HC 2954, 4185, *Hitchcock* in 1906.

<sup>a</sup> See footnote, p. 193.

<sup>b</sup> Rich. in Sagra, Hist. Cub. 11:299. 1850. The type is *Linden* 1813.

<sup>c</sup> Bull. Torr. Club 30: 381. 1903.

<sup>d</sup> Contr. Nat. Herb. 12: 116. 1908.



I have not seen the type of this species, but in the Trinius Herbarium there is a specimen labeled "*Paspalum papillosum* Sprengel, mis. cl. auctor." The Cuban plants agree with this, except that the spikelets are less glandular, the flat surface being quite glabrous. Agreeing with Sprengel's specimen are two in the Trinius Herbarium, one collected by Salzmann in Bahia labeled "*Paspalum horticola martinica* Salzm." and another by Riedel at Bahia in 1831. Tonduz's 4474 from Costa Rica belongs here. Wright's 3444 in the Torrey Herbarium is *P. papillosum*.

23. ***Paspalum pedunculatum*** Poir. Encycl. Suppl. 4: 315. 1816.

*Paspalum decumbens* Sw. Prod. 22. 1788, not Rottb. 1778.

*Panicum decumbens* Roem. & Schult. Syst. 2: 429. 1817.

*Paspalum vaginiflorum* Steud. Syn. Pl. Glum. 1: 19. 1854.

*Dimorphostachys pedunculata* Fourn. Mex. Pl. 2: 15. 1886.

Banks of Rio San Sebastian, Pinar del Rio, December, Wright 3851; Isle of Pines, Curtiss 327.

A second Wright label reads, "Damp woods, Rangel, Dec."

Steudel's type, from "Guiana, Lenormand" is in the museum at Paris.

24. ***Paspalum plicatulum*** Michx. Fl. Bor. Amer. 1: 45. 1803.

Savannas, Retiro, Wright 768; in small tufts, pinales, Pinar del Rio, Wright 3839; Magay, Baker & Wilson HC 354; Santiago de las Vegas, Wilson 420, 421, 425, Baker 2056, 3112, 3113, 3454, Baker & Wilson, 545, 596, Hitchcock in 1906; La Magdalena, Baker 5, 7; Habana, Tracy, 9117; Herradura, Tracy 9051, 9052, Hitchcock in 1906; Isle of Pines, Palmer & Riley 947, Taylor 38; Cienfuegos, Combs 262 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Isle of Pines, Curtiss in 1904; Alto Cedro, Underwood & Earle 1621; Matanzas, Britton & Wilson 429; Sagua, Britton & Wilson 280, 285, 337; La Soledad, Eggers, 5405.

The Grisebach specimen, from "edge of savannas, Manabana, May 19," 1856, bears the secondary number 166. Wright's 768 in the Gray Herbarium is labeled, "Savannas, Chirigote, July 11."

25. ***Paspalum propinquum*** Nash, Bull. N. Y. Bot. Gard. 1: 291. 1899.

Wright 3845.

26. ***Paspalum pulchellum*** Kunth, Mem. Mus. Hist. Nat. 2: 68. 1815.

*Reimaria elegans* Flüge, Mon. Pasp. 216. 1810, not *Paspalum elegans* Kunth, Enum. 1: 59. 1833.

Wright 3439; Herradura, Hitchcock in 1906; Isle of Pines, Curtiss in 1904 in Herb. N. Y. Bot. Gard.

The specimen in the National Herbarium bears the secondary number 171. One of the Grisebach specimens is from western Cuba in 1863, and is numbered "915=3439;" the other bears the secondary number 171 and is labeled "Bushy savannas, Manabana, May 24, 1865." One sheet of this in the Torrey Herbarium is numbered 3839.

27. ***Paspalum rigidifolium*** Nash, Bull. N. Y. Bot. Gard. 1: 292. 1899.

Wright 3442.

The Grisebach specimen of this species, collected in western Cuba in 1863, bears the number "905=3442." Wright's 3442 in the Gray Herbarium is labeled "Savannas, Chirigote, July 11."

28. ***Paspalum rottboellioides*** Wright, Anal. Acad. Cienc. Habana 8: 204. 1871; Sauv. Fl. Cub. 195.

Wright 3864; Isle of Pines, Curtiss 375, Taylor 41; Herradura, Baker & Dimmock HC 4813.

The type of this species is Wright 3864 in the Gray Herbarium.

29. *Paspalum rupestre* Trin. *Linnaea* 10: 293. 1836.

*Wright* 3444, 3445; near Habana, *Hitchcock* in 1906; *Leon* 286.

The Grisebach specimen is from eastern Cuba, 1860, numbered "109=3445," and is labeled, "*Paspalum lindenianum* Rich. (Megaphyllum Steud.)," under which name it is listed in Grisebach's Catalogue of Cuban Plants.<sup>a</sup> A second specimen is from western Cuba, 1863, and is numbered "939=3445." A third specimen collected in 1863 and numbered "943=3444," is included by Grisebach in his cover of *P. caespitosum*. Wright's 3445 in the Gray Herbarium is labeled "Pinales near Baracoa, June 15."

30. *Paspalum vaginatum* Sw. *Prod.* 21. 1788.

*Digitaria foliosa* Lag. *Gen. & Sp. Nov.* 4. 1816.

Hanabana, Doctor Robbins, *Wright* 3854; Habana, *Curtiss* 751; Batabano, *Baker* HC 2294, 1863.

The characters which separate this from *P. distichum* L., the glabrous spikelets and more or less suppressed midnerve of the glume, may prove to be inconstant. Grisebach's specimen from western Cuba, 1863, numbered 947, is this species. A part of *Wright* 1546 (1546a) in the Torrey Herbarium has glabrous spikelets, and consequently would be referred to *P. vaginatum*.

Lagasca's type, labeled "*Digitaria foliosa* sp. n. ex Havana, Bolso iter," is in the herbarium of the Botanical Garden at Madrid.

31. *Paspalum virgatum* L. *Syst. Nat.* ed. 10. 2: 855. 1759.

*Paspalum leucocheilum* Wright, *Anal. Acad. Cienc. Habana* 8: 203. 1871; *Sauv. Fl. Cub.* 194.

Isle of Pines, *Curtiss* 501, *Taylor* 42, *Palmer & Riley* 1057; without locality, *Wright* 3446; La Magdalena, *Baker* HC 3626, *Britton & Shafer* 243 in *Herb. N. Y. Bot. Gard.*; Santiago de las Vegas, *Baker* HC 544, 595; Las Acostas, *Baker* HC 5242, 5246; Batabano, *Baker* HC 3967; Arroyo Galiano, *Baker* HC 5211; Habana, *Tracy*, *Baker & Hasselbring* HC 3085, *Tracy* 9120, 9122, 9123, 9124; Guanabacoa, *Leon* 195; Herradura, *Tracy* 9127, *Hitchcock* in 1906; San Diego de los Baños, *Palmer & Riley* 628; Guines, *Leon* 578, Pinar del Río, *Shafer* 479 in *Herb. N. Y. Bot. Gard.*; Matanzas, *Britton & Wilson* 155, 455 in *Herb. N. Y. Bot. Gard.*

Grisebach's specimen is numbered 302 (labeled *β stramineum*), while the specimen in the Sauvalle Herbarium bears this number in addition to no. 3446. The type specimen of *P. leucocheilum* Wright is in the Gray Herbarium. The spikelets are somewhat smaller than normal (2 mm. long), and the inflorescence consists of a single spike partially concealed in the uppermost sheath. The spikelets have the shape and pubescence of *P. virgatum*.

31a. *Paspalum virgatum schreberianum* Flüge, *Mon. Pasp.* 190. 1810.

Guanajay, *Palmer & Riley* 813 in part; Herradura, *Hitchcock* in 1906; Batabano, *Hitchcock* in 1906; Habana, *Tracy* 9125, 9126; *Wright* 3446 in Gray Herbarium; *Rugel* 898 in Gray Herbarium; Isle of Pines, *Curtiss* in 1904 in *Herb. N. Y. Bot. Gard.* Cienfuegos, *Combs* 262 in *Herb. N. Y. Bot. Gard.*

This differs from *P. virgatum* in its scarcely pilose rachis and oblong-obovate, acute, glabrous spikelets. It appears to be a distinct species, but as the type has not been examined, our plants are referred as above, rather than separated under a new name. This form appears to be included in *P. virgatum glabriusculum* by Doell in Martius's *Flora Brasiliensis*.<sup>b</sup> Wright's 3446 in Gray Herbarium is labeled, "In large tufts on sand bars of the Baracoa near N. Sophie, Sept. 11."

32. *Paspalum* sp.

*Wright* 3848.

This specimen in the Sauvalle Herbarium is too fragmentary to identify. It appears to belong to none of the species enumerated in the list. It is listed in Sau-

<sup>a</sup> See note under *P. nanum*.

<sup>b</sup> 2: 89. 1877.



valle's Flora Cubana as "*P. swartzianum* Flügge?," but it is not that species as here understood. The specimen in the Gray Herbarium is less fragmentary. The blades are long and narrow, 30 or 40 cm. long and less than 1 mm. wide; terminal spike single; spikelets glabrous, 1.5 mm. long. A part of *Wright* 3444 in the Gray Herbarium appears to be this species.

## 20. *AXONOPUS* Beauv. Agrost. 12. 1812.

### 1. *Axonopus compressus* (Sw.) Beauv. Agrost. 12. 1812.

*Milium compressum* Sw. Prod. 24. 1788.

*Paspalum compressum* Rasp. Ann. Sci. Nat. 1. 5: 301. 1825.

Wet places in roads and elsewhere Zarabanda, May 21, *Wright* 3849, *Wright* 3850, *Wright* 763 in Gray Herbarium; Isle of Pines, *Curtiss* 306, 511; Habana, *Curtiss* 606, *Leon* 298; Herradura, *Hitchcock* in 1906, *Tracy* 9092; San Antonio, *Baker* HC 2946, *Hitchcock* in 1906; Santiago de las Vegäs, *Hitchcock* in 1906; Managua, *Baker* & *Wilson* 314 in Herb. N. Y. Bot. Gard.; Matanzas, *Britton* & *Wilson* 104 in Herb. N. Y. Bot. Gard.

In the Grisebach Herbarium are two specimens of this species, one of 1865 labeled, "Roadside, Hanabana, May 18," and bearing the secondary number 168, and one of no. 765, 1860-64. The Sauvalle specimen of *Wright* 3850 has two labels, with localities El Salado and Retiro. This number has narrower blades and larger spikelets, about 3 mm. long. This may be *Paspalum tristachyon* Lam.,<sup>a</sup> the type of which I have not seen. The sheet of *Wright* 3849 in the Gray Herbarium bears also a specimen of *Syntherisma digitata*.

## 21. *LEPTOCORYPHIUM* Nees, Agrost. Bras. 83. 1829.

### 1. *Leptocoryphium lanatum* (H. B. K.) Nees, Agrost. Bras. 83. 1829.

*Paspalum lanatum* H. B. K. Nov. Gen. & Sp. 1: 94. 1816.

*Wright* 3429; Isle of Pines, *Palmer* & *Riley* 440. 972, *Curtiss* 393; La Magdalena, *Baker* HC 4555; Herradura, *Hitchcock* in 1906, *Tracy* 9048, 9071. The following are in the herbarium of the New York Botanical Garden: Santa Clara, *Britton* & *Wilson* 335; Pinar del Rio, *Shafer* 481; Cedro, *Underwood* & *Earle* 1451, 1459.

Grisebach's specimen, from western Cuba in 1863, is numbered "919=3429." *Wright*'s 3429 in the Gray Herbarium is labeled, "Wet savannas, Candelaria, June 3," and "Savannas near Pinar del Rio, Dec. 11."

## 22. *ERIOCHLOA* H. B. K. Nov. Gen. & Sp. 1: 94. *pl.* 30. *fl.* 1816.

Blades filiform.....1. *E. filifolia*.

Blades flat.

Fruit tipped with a slender awn 1 mm. long; blades 7 to 15 mm.

wide.....2. *E. punctata*.

Fruit merely apiculate; blades 2 to 3 mm. wide.....3. *E. ramosa*.

### 1. *Eriochloa filifolia* sp. nov.

Plant caespitose; culms numerous, very slender, almost capillary, glabrous, 10 to 20 cm. high, erect or more or less geniculate below; leaves glabrous, blades very narrow, convolute-setaceous, the lower about 10 cm. long, the upper shorter, the uppermost 1 to 2 cm.; spikes mostly 2, erect, 1 to 2 cm. long, one terminal, the other 5 to 10 mm. below; rachis capillary, minutely pubescent or scabrous, pubescent at base; spikelets 4 to 8, 3 mm. long, secund in a single row, the pedicels slender, about 1 mm. long, the cup or joint dark-colored; glume and sterile lemma about

<sup>a</sup> Tabl. Encycl. 1: 176. 1791.

equal, ovate-acuminate, pilose with appressed hairs, sterile lemma empty; fertile lemma oval, glabrous, 1.5 mm. long, tipped with a slender scabrous awn about 1 mm. long.

Jata Hills near Guanabacoa, *Hitchcock*, March 15, 1906, no. 559392 in the U. S. National Herbarium (type).

2. **Eriochloa punctata** (L.) Hamilt. Prod. Fl. Ind. Occ. 5. 1825.

*Milium punctatum* L. Syst. ed. 10. 2: 872. 1759.

*Wright* 1542; Yumary Mountains, *Rugel* 889 in Herb. N. Y. Bot. Gard.

There are two specimens of this species in the Grisebach Herbarium, both from eastern Cuba, one collected in 1859, marked 1542, the other in 1860, with the secondary number 95. In the Gray Herbarium there are also two sheets of the same, one collected near Monte Verde, eastern Cuba, in 1859, "River bank Saltadero, Sept. 11," the other from "Sand bars of the Baracoa near N. Sophie, Sept. 11," 1860-1864.

3. **Eriochloa ramosa** (Retz.) Kuntze, Rev. Gen. Pl. 2: 775. 1891.

*Milium ramosum* Retz. Obs. 6: 22. 1791.

*Paspalus annulatus* Flügge, Mon. Pasp. 133. 1810.

*Eriochloa annulata* Kunth, Rev. Gram. 1: 30. 1829.

*Wright* 3886.

This agrees with Asiatic specimens and may be introduced. It differs from *E. punctata* in the narrower blades and the shorter awn to the fruit.

Allied to these is the Porto Rican **Eriochloa subglabra** (Nash). (*Monachne subglabra* Nash, Bull. Torr. Club 30: 374. 1903; *Eriochloa punctata subglabra* Urban, Symb. Antill. 4: 85. 1903). This species differs from *E. ramosa* in the broader blades and pronouncedly velvety nodes, and in habit; from *E. punctata* in the mucronate, instead of slender-awned, fertile lemma, and from both in having a staminate flower in the axil of the sterile lemma. Urban reduced this to a variety of *E. punctata* without having seen the plant.

23. **ISACHNE** R. Br. Prod. 196. 1810.

1. **Isachne leersioides** Griseb. Mem. Amer. Acad. n. ser. 8: 533. 1862.

*Wright* 755 in National Herbarium (1547 in Sauvalle Herbarium).

Number 755 in the Sauvalle Herbarium is *Panicum exiguiflorum*. In the Grisebach Herbarium there are two specimens of *Isachne leersioides* collected by Wright in eastern Cuba—one in 1859, numbered 755, and one in 1860, numbered 102. In the Gray Herbarium there are three specimens bearing the number 755. One is *P. exiguiflorum*; the other two are *Isachne leersioides*, both from eastern Cuba—one in 1856-57, the other from Monte Verde in 1859. *Isachne leersioides* is listed in Sauvalle's Flora Cubana as no. 1547.

24. **SYNTHESISMA** Walt. Fl. Car. 76. 1788.

Rachis of racemes wing-angled.

Spikelets 3 to 4 mm. long, more or less villous on nerves; rachis

not pilose.....4. *S. sanguinalis*.

Spikelets 2 mm. long, glabrous; rachis sparsely long-pilose.....1. *S. digitata*.

Rachis of racemes angled but scarcely winged.

Spikelets about 3 mm. long, nearly glabrous.....5. *S. simpsoni*.

Spikelets 1.5 to 2.5 mm. long, usually villous-ciliate.

Racemes usually less than 10 cm. long; spikelets 1.5 mm.

long.....2. *S. filiformis*.

Racemes usually more than 10 cm. long; spikelets 2 to 2.5 mm. long.

Blades much elongated, mostly 30 to 40 cm. long,  
nearly glabrous; spikelets about 2.5 mm. long.....3. *S. leucocoma*.  
Blades shorter, mostly 10 to 20 cm. long, woolly-villous;  
spikelets about 2 mm. long.....6. *S. villosa*.

1. **Syntherisma digitata** (Sw.) Hitchc. Contr. Nat. Herb. 12: 142. 1908.

*Milium digitatum* Sw. Prod. 24. 1788.

*Digitaria setosa* Desv.; Hamilt. Prod. Fl. Ind. Occ. 6. 1825.

*Syntherisma setosa* Nash, Bull. Torr. Club 25: 300. 1898.

Wright 764 in part; Herradura, Tracy 9049, Hitchcock in 1906; Isle of Pines, Curtiss in 1904 in Herb. N. Y. Bot. Gard.

In the Grisebach Herbarium are two Wright specimens, no. 177 of 1865, "Bushy savannas, Hanabana, May 29," and no. 764 from eastern Cuba, 1856-57. Wright's 764 from eastern Cuba in 1856-57 in the Gray Herbarium is a mixture of *S. digitata* and *S. sanguinalis*; no. 764 of 1865 is the latter species only.

2. **Syntherisma filiformis** (L.) Nash, Bull. Torr. Club 22: 420. 1895.

*Panicum filiforme* L. Sp. Pl. 57. 1753.

*Panicum curvinerve* Hack. Oesterr. Bot. Zeitschr. 51: 335. 1901.

Wright 1544 in part.

The specimen of Wright's 1544 in the National Herbarium labeled, "Sandy pine woods, Pinar del Rio, Sept.," is partly this and partly *S. leucocoma* Nash. Hackel<sup>a</sup> bases his *P. curvinerve* upon this portion of Wright 1544. The characters which he mentions, such as the smooth glumes with incurving nerves, are found not infrequently among specimens of *S. filiformis* from the northern United States, whence the type was collected by Kalm. In the specimen of 1544 in the National Herbarium (the smaller portion with spikelets only 1.5 mm. long) part of the panicles have nearly glabrous spikelets, and part have long-pubescent spikelets. This differs distinctly from the other part of Wright 1544, which Hackel may have taken for the true *S. filiformis*. The amount of pubescence upon the spikelet is quite variable in this species as in others of this genus. The size of the spikelets, however, is fairly constant. In the Grisebach Herbarium there are two specimens of this from eastern Cuba, one collected in 1859 numbered 1544, the other in 1860 numbered "107=1544."

3. **Syntherisma leucocoma** Nash, Bull. Torr. Club 25: 295. 1898.

Sandy pine woods in large tufts, Pinar del Rio, September, Wright 1544, in part; Herradura, Hitchcock in 1906.

Spikelets 2.5 mm. long; plants mostly glabrous or nearly so, tall, with elongated narrow blades and slender erect racemes as much as 25 cm. long.

4. **Syntherisma sanguinalis** (L.) Dulac, Fl. Haut. Pyr. 77. 1867.

*Panicum sanguinale* L. Sp. Pl. 57. 1753.

*Asperella digitaria* Lam. Tabl. Encycl. 1: 167. 1791.

La Fermina, June 17, Wright 3883; Wright 764 in part; Habana, Curtiss 655, Hitchcock in 1906, Leon 301, 304; Santiago de las Vegas, Hitchcock in 1906, Baker HC 501; Puentes Grandes, Leon 279; Guanabacoa, Hitchcock in 1906; Batabano, Hitchcock in 1906; Cienfuegos, Pringle 46 in the Gray Herbarium; Guines, Leon 304. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, Taylor 50; Isle of Pines, Curtiss in 1904; Rincon, Britton & Wilson 485; Matanzas, Britton & Shafer 333; Bayamese, Eggers 4690.

The sheet of 764 in the National Herbarium, like that in the Sauvalle Herbarium, consists of a mixture of this species and *S. digitata*. In the latter herbarium this number has two labels, one "Savannas, S. Cristobal, Aug.," the other "Sandy pine woods, Pinar del Rio, Sept." No. 764 in the National Herbarium has the label,

<sup>a</sup> Loc. cit.

"Savannas, Retiro, July." In the Grisebach Herbarium there are two specimens from Wright. One collected in 1865 and numbered 178, and 294 ("var. *erigona*"); the other without number, labeled "Roads and fields, common, Hanabana, May 21."

Lamarck's type, labeled "*Asperella digitaria* lam. ill. ex. D. Richard," is in the Lamarck Herbarium in the Museum at Paris.

5. **Syntherisma simpsoni** (Vasey) Nash, Bull. Torr. Club **25**: 297. 1898.

*Panicum sanguinale simpsoni* Vasey, Contr. Nat. Herb. **3**: 25. 1892.

Isle of Pines, *Curtiss* 521.

Spikelets glabrous, 2.5 mm. long, the glume and sterile lemma equal and slightly exceeding the fruit. **Syntherisma aequiglumis** (Hack. & Arech.) (*Panicum aequiglume* Hack. & Arech. in Arech. Gram. Urug. 93. 1894) differs in having larger spikelets, 3.5 mm. long, the acuminate sparsely pubescent glume and sterile lemma exceeding the fruit by 0.5 mm.

6. **Syntherisma villosa** Walt. Fl. Car. 77. 1788.

Sandy pinales, La Grifa la Catolina, Pinar del Rio, January, *Wright* 3884; Herradura, *Tracy* 9077, 9104.

There are two specimens in the Grisebach Herbarium, one marked "Edge of woods, bushy savannas, Hanabana, May 30," 1865, numbered 173, the other, "Bushy savannas, Hanabana, May 27," 1865. Spikelets about 2 mm. long; plant pubescent or nearly glabrous.

**25. VALOTA** Adans. Fam. Pl. **2**: 495. 1763.

1. **Valota insularis** (L.) Chase, Proc. Biol. Soc. Wash. **19**: 188. 1906.

*Andropogon insulare* L. Syst. Nat. ed. 10. **2**: 1304. 1759.

*Panicum leucophaeum* H. B. K. Nov. Gen. & Sp. **1**: 87. 1816.

*Panicum duchaissingii* Steud. Syn. Pl. Glum. **1**: 93. 1854.

Santiago de las Vegas, *Baker* HC 602, 1473, *Hitchcock* in 1906; Vento, *Schafer* in 1903; Tricornia, *Tracy* 9083; Herradura, *Tracy* 9050; San Luis, *Pollard & Palmer* 350; Matanzas, *Rugel* 191 in Gray Herbarium; Cienfuegos, *Pringle* 44 and *Combs* 255 in Gray Herbarium; Marianao, *Leon* 306. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Hamilton* 216, 217, *Underwood & Earle* 165; Matanzas, *Britton & Shafer* 165, *Britton & Wilson* 101; Cedro, *Underwood & Earle* 1536.

In the Grisebach Herbarium is a Wright specimen from eastern Cuba, 1859, numbered 1541.

Steudel's type from "Ins. Guadeloupe Duchaussing" is in the Museum at Paris.

**26. ALLOTEROPSIS** Presl, Rel. Haenk. 343. *pl.* 47. 1830.<sup>a</sup>

Blades elongated, 30 to 40 cm. long; racemes several in a cluster. 2. *A. dura*.

Blades mostly radical, 10 to 15 cm. long; racemes 1 or 2 ..... 1. *A. amphistemon*.

<sup>a</sup> The type species is *A. distachya* Presl (op. cit. 344), which is published as coming from Monterey, California, but the type in the National Museum at Prague has two labels, "Peruana montana," and "Regio montana Luzon?" The plant is **Alloteropsis semialata** (R. Br.); *Panicum semialatum* R. Br. Prod. 192. 1810, the type of which is from New Holland. This is not an American species and Presl's type must have come from the Philippines, as indicated by Scribner (Rep. Mo. Bot. Gard. **10**: 37. 1899). Presl's plate and description are incorrect in that the artist incorporated in the drawing of the spikelet of *Alloteropsis* a spikelet of an *Andropogon* which had become wedged between the glumes and this is described as a second pair of spikelets. Although Presl's genus is founded upon a misconception there is no doubt as to the identity of the type species. Hence *Alloteropsis*, the oldest name for this group as segregated from *Panicum*, is accepted for the genus.

1. *Alloteropsis amphistemon* (Wright).

*Panicum amphistemon* Wright, Anal. Acad. Cienc. Habana 8: 207. 1871; Sauv. Fl. Cub. 198.

Wright 3464.

The type of *Panicum amphistemon* Wright is in the Gray Herbarium, Wright 3464, labeled "Mayarí-abajo, Aug. 2. in small dense tufts."

2. *Alloteropsis dura* (Griseb.).

*Panicum durum* Griseb. Mem. Amer. Acad. n. ser. 8: 533. 1862.

Rocky hills, procumbent in loose tufts, Valesina, September 25, Wright 3868; in small tufts on steep hills at the Farallones, N. Sophie, September 29, Wright 1539 in the Gray Herbarium.

In the Grisebach Herbarium is the type of *P. durum*, Wright 1559 from eastern Cuba in 1859.

27. **MESOSETUM** Steud. Syn. Pl. Glum. 1: 118. 1854.<sup>a</sup>

Spikelets copiously villous-ciliate ..... 1. *M. rottboellioides*.  
Spikelets glabrous or somewhat hispid ..... 2. *M. wrightii*.

1. *Mesosetum rottboellioides* (H. B. K.).

*Panicum rottboellioides* H. B. K. Nov. Gen. & Sp. 1: 96. 1816.

*Mesosetum cayennense* Steud. Syn. Pl. Glum. 1: 118. 1854.

Culms scattered, single or few, savannas, Matatosa, August, Wright 3449; Herradura, Baker III 2935, Tracy 9058, Hitchcock in 1906; Isle of Pines, Curtiss 396, Palmer & Riley 889, 896, Taylor 31; Cienfuegos, Combs 401 in Gray Herbarium; Sagua, Britton & Wilson 336 in Herb. N. Y. Bot. Gard.

The Sauvalle specimen has a second label which reads, "In small tufts, Pinales, Daganiguas, Almacigos Consolacion, Sept." The Grisebach specimen from western Cuba, 1863, is numbered "894=3449." Wright 3449 in the Gray Herbarium is from "Savannas, Vueltabajo, July 24."

2. *Mesosetum wrightii* sp. nov.

Culms ascending from a geniculate, rooting or creeping base, slender, glabrous, 20 to 40 cm. long; nodes appressed-hispid; sheaths glabrous below, hispid toward the summit, or the lower hispid throughout, ciliate on the margin; ligule of short bristles; blades flat or somewhat involute on the margins, stiff and thick, yellow-green, hispid below and sparsely so above, remotely papillose-ciliate on the cartilaginous margins, 3 to 6 cm. long, 2 to 3 mm. wide, the uppermost much reduced; spike single, terminating the culm, mostly long-exserted, 2 to 3 cm. long; spikelets subsessile, appressed to the rachis, alternate, 3 to 4 mm. long, the apex of one about reaching the base of the one above on the same side; first glume glabrous, 3-nerved, narrow, acuminate to a blunt point, a little shorter than the second, placed next to the rachis; second glume hispid at the base with a tuft of hairs, sparsely or copiously hispid above, strongly 5-nerved and with some additional striae, narrowed to a blunt apex; sterile lemma similar, somewhat gibbous below, 7-nerved, its palea obsolete; fertile lemma chartaceous, smooth, and shining, rounded on the back so as to be as thick as wide, about 2 mm. long, extended into a short point, the margins flat, not inrolled; palea similar and included in the margins of the lemma.

Type specimen from Cuba, Wright 3859 no. 559961 in the U. S. National Herbarium. The fragmentary specimen in the Sauvalle Herbarium bears the label

<sup>a</sup>*Mesosetum* Steud. Flora 33: 228. 1850, nomen nudum. The type species of *Mesosetum* is *M. cayennense* Steud.. "Leprieur legit. in Cayenne." the type specimen of which, in the herbarium of the Museum at Paris, belongs to the same species as that of *Panicum rottboellioides* H. B. K. in the same herbarium.

"Pinales, Daganiguas, Almicigos, Sept." *Panicum sclerochloa* Trin.<sup>a</sup> (*Mesosetum sclerochloa* (Trin.)) of Brazil, the type of which is in the Trinius Herbarium, differs in having glabrous blades, spikelets 5 mm. long, somewhat scabrous but not hispid, and glumes and lemmas all notched near the apex, hence somewhat 3-lobed. In Sauvalle's Flora Cubana Wright 3859 is doubtfully referred to *Panicum sclerochloa* Trin.

## 28. BRACHIARIA Griseb. in Ledeb. Fl. Ross. 4: 469. 1853.

### 1. *Brachiaria plantaginea* (Link).

*Panicum plantagineum* Link, Hort. Berol. 1: 206. 1827.

*Panicum leandri* Trin. Icon. 335. 1836.

*Paspalum platyphyllum* Griseb. Cat. Pl. Cub. 230. 1866.

*Panicum platyphyllum* Munro; Vasey, U. S. Dept. Agr. Div. Bot. Bull. 8: 25. 1889.

*Brachiaria platyphylla* Nash in Small, Fl. Southeast. U. S. 81. 1903.

Wright 3853, 3441; in dense patches in pasture, Sabinilla, June, Wright 3867.

The type of Link's species is in the Berlin Herbarium. Wright's 3853 in the Sauvalle Herbarium bears the secondary number 174. In the Grisebach Herbarium are two specimens, the type of *Paspalum platyphyllum* from western Cuba, 1863, numbered "892=3441" and no. 174 labeled, "Damp places in roads and elsewhere, Zarabanda, May 4." This species is placed in the genus *Brachiaria* because the spikelets are placed with the first glume toward the rachis.

## 29. HYMENACHNE Beauv. Agrost. 48. pl. 10. f. 8. 1812.

Inflorescence spike-like; spikelets 4 mm. long.....1. *H. amplexicaulis*.

Inflorescence of numerous spikes, 1 to 3 cm. long; spikelets 2 to

3 mm. long.....2. *H. auriculata*.

### 1. *Hymenachne amplexicaulis* (Rudge) Nees, Agrost. Bras. 276. 1829.

*Panicum amplexicaule* Rudge, Pl. Guian. 1: 21. 1805.

*Panicum hymenachne* Desv. Opusc. 82. 1831.

*Panicum myuros* of authors, not Lam.<sup>b</sup>

Wright 3469; Santiago de las Vegas, Hitchcock in 1906; Habana, Leon 559; Guines, Leon 577.

The specimen in the Grisebach Herbarium is from eastern Cuba, 1860, and is numbered "108=3469." No. 3469 in the Gray Herbarium is from "Margin of Rio Bayamo, Oct. 14."

### 2. *Hymenachne auriculata* (Willd.) Chase, Proc. Biol. Soc. Wash. 21: 5. 1908.

*Panicum auriculatum* Willd.; Spreng. Syst. 1: 322. 1825.

Wright 3863 in part.

There are three labels with this specimen in the Sauvalle Herbarium, "In ponds, Daganiguas, Sept.," "Wet margin of lagunas, Sta. Cruz de los Piños, Nov. 10," "Low marshy lands, Guanimar, Nov." On the same sheet is a specimen of *Panicum condensum* Nash, and one of *P. laxum* Sw.

The specimen of *Hymenachne* is fragmentary, but appears to belong to this species. Wright's 3863 in the National Herbarium is mixed with *Panicum laxum* Sw. Wright's 3863 in the Gray Herbarium is mixed with *P. condensum*.

## 30. SACCIOLEPIS Nash in Britton, Man. 89. 1901.

Spikelets 4 mm. long, on slender pedicels.....2. *S. striata*.

Spikelets 2 to 3 mm. long, subsessile.

<sup>a</sup> Icon. 283. 1836.

<sup>b</sup> See Proc. Biol. Soc. Wash. 21: 1. 1908.



- Spikelets 2 mm. long, panicle dense.....1. *S. myuros*.  
 Spikelets 3 mm. long, panicle often interrupted.....3. *S. vilroides*.

1. **Sacciolepis myuros** (Lam.) Chase, Proc. Biol. Soc. Wash. **21**: 7. 1908.

*Panicum myuros* Lam. Tabl. Encycl. **1**: 172. 1791.

Isle of Pines, *Curtiss* 428.

2. **Sacciolepis striata** (L.) Nash, Bull. Torr. Club **30**: 383. 1903.

*Holcus striatus* L. Sp. Pl. 1048. 1753.

*Panicum gibbum* Ell. Bot. S. C. & Ga. **1**: 116. 1816.

On tembladeros<sup>a</sup> in lagunas, Pinar del Rio, December, *Wright* 3885.

The Grisebach specimen is from Hanabana, May 25, 1865, numbered 198. A specimen in the Gray Herbarium is numbered "302=3885."

3. **Sacciolepis vilroides** (Trin.) Chase, Proc. Biol. Soc. Wash. **21**: 7. 1908.

*Panicum vilroides* Trin. Gram. Pan. 171. 1826.

*Hymenachne fluvialis* Nees, Agrost. Bras. 273. 1829.

In rivulets, Pinar del Rio, October, *Wright* 3470; Isle of Pines, *Curtiss* 304.

This species is represented in the Grisebach Herbarium by a Wright specimen from western Cuba, 1863, numbered "944=3470." Wright's 3470 in the Gray Herbarium is labeled, "In lagunas, Los Almacigos, Nov. 23," and "On tembladeros<sup>a</sup> in lagunas, Asiento viejo de San Julian, Nov. 30."

**31. ECHINOCHLOA** Beauv. Agrost. 53. *pl. 11. f. 2.* 1812.

Sheaths hirsute.....3. *E. walteri*.

Sheaths glabrous.

Spikelets pointed but not awned.....1. *E. colona*.

Spikelets awned.....2. *E. crussgalli*.

1. **Echinochloa colona** (L.) Link, Hort. Berol. **2**: 209. 1833.

*Panicum colonum* L. Syst. Nat. ed. 10. **2**: 870. 1759.

*Wright* 752; Habana, *Baker* HC 1796, *Leon* 303, *Palmer & Riley* 1137; Santiago de las Vegas, *Baker* HC 502, 4765, *Hitchcock* in 1906; Buena Vista, *Shafer* in 1903; Cerro, *Shafer* 180; Guanabacoa, *Leon* 117 in part; Cabañas, *Palmer & Riley* 756; Cienfuegos, *Pringle* 45; *Combs* 254 in Gray Herbarium; Guines, *Leon* 425. The following are in the herbarium of the New York Botanical Garden: Isle of Pines, *Curtiss* 427; Matanzas, *Britton & Shafer* 509; Cedro, *Underwood & Earle* 1620.

In the Grisebach Herbarium there are two specimens, one from western Cuba, 1863, "946=752," the other numbered 27, collected in 1865.

A specimen in the herbarium of the New York Botanical Garden from Matanzas, *Rugel* 884, is doubtfully referred to *E. colona*. The spikelets have awns 2 to 3 mm. long.

2. **Echinochloa crussgalli** (L.) Beauv. Agrost. 53. 1812.

*Panicum crussgalli* L. Sp. Pl. 56. 1753.

Santiago, *Linden* 1814 in Leipzig Herbarium; *Rugel* 889 in Grisebach Herbarium; *Wright* in 1865 in Grisebach Herbarium; *Wright* 53 of 1865 in Kew Herbarium; Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard.; Matanzas, *Britton & Wilson* 175 in Herb. N. Y. Bot. Gard.

3. **Echinochloa walteri** (Pursh) Nash in Britton, Man. 78. 1901.

*Panicum walteri* Pursh, Fl. Sept. Amer. **1**: 66. 1814.

Low wooded swamps, Hanabana, May 27, *Wright* 3879; *Wright* 160 in Kew Herbarium.

<sup>a</sup>Quaking bogs.

There are two additional labels with *Wright* 3879 in the Sauvalle Herbarium, "Low marshy savannas, Guanimas, Nov.," and "Margin of mangrove swamp, Trinidad, Mar. 13."

### 32. *PANICUM* L. Sp. Pl. 55. 1753.

Axis of the panicle branches extending beyond base of uppermost spikelet as a short point or bristle.....11. *P. distantiflorum*.

Axis of panicle branches not extended into a bristle.

Inflorescence consisting of several spike-like, more or less secund racemes.

Fruit smooth and shining; spikelets not over 1.5 mm. long. (LAXUM GROUP.)

Rachis pilose; pedicel short, subequal.....32. *P. pilosum*.

Rachis not pilose; pedicels unequal, panicle less regular.....23. *P. laxum*.

Fruit transversely wrinkled; spikelets turgid. (REP-TANS GROUP.)

Nodes bearded.....29. *P. numidianum*.

Nodes sometimes pubescent, but not bearded.

Glumes and sterile lemma prominently transversely reticulate-veined.....15. *P. fasciculatum*.

Glumes and sterile lemma not cross-veined.

Spikelets hispidulous, pointed, first glume acute.....2. *P. adspersum*.

Spikelets glabrous, first glume truncate.

Blades ovate-lanceolate, 5 to 10 mm. wide, 2 to 7 cm. long; prostrate-spreading.....35. *P. reptans*.

Blades elongated, 10 to 20 cm. long, narrow; flowering culms erect or ascending; inflorescence of numerous erect-appressed racemes on an elongated axis; spikelets in 2 distinct rows.....17. *P. geminatum*.

Inflorescence a more or less diffuse panicle, sometimes narrow and rather compact, but not consisting of spike-like racemes.

Stems woody, resembling bamboos. (DIVARICATUM GROUP.)

Sheaths villous.

Stems tall, blades 1 to 2 cm. wide, not distichous.....42. *P. swartzianum*.

Stems creeping, blades distichous, 2 to 3 cm. long, about 5 mm. wide, velvety.....36. *P. rugelii*.

Sheaths smooth or pubescent only.

Panicle compact; blades ovate-lanceolate, 1.5 to 4 cm. wide, velvety-puberulent beneath; spikelets globular.....8. *P. compactum*.

Panicle open, blades lanceolate.

Stem creeping, sending up erect flowering culms.....19. *P. grisebachii*.

Stem climbing or trailing.

Panicle large and spreading, 10 to 20 cm. long; blades 1.5 to 2.5 cm. wide.....39. *P. sloanei*.



Panicles small and few-flowered, usually  
about 5 cm. long; blades usually 5  
to 8 mm. wide.....12. *P. divaricatum*.

Stems herbaceous.

Fruit transversely rugose.....25. *P. maximum*.

Fruit smooth. (See continuation 1.)

(Continuation 1.)

Plants forming a rosette of basal leaves in autumn; early culms simple, with terminal, exserted, many-flowered, spreading panicles; freely branching after maturity of primary panicle, and bearing numerous reduced panicles more or less included in the sheaths. (DICHOTOMUM GROUP.)

Ligule a ring of hairs, 1 mm. or more long; spikelets pubescent, 1 to 1.5 mm. long.

Spikelets hardly 1 mm. long; foliage minutely pubescent, not velvety.....48. *P. wrightianum*.

Spikelets 1.5 mm. long.

Foliage smooth or minutely puberulent.....24. *P. leucothrix*.

Foliage velvety ..... 1. *P. acuminatum*.

Ligule inconspicuous.

Autumnal state a flat mat or rosette of soft leaves; blades ciliate; spikelets 1.5 to 2 mm. long, glabrous.

Blades pilose on the surface.....41. *P. strigosum*.

Blades glabrous on the surface.....33. *P. polycaulon*.

Autumnal state erect or spreading.

Sheaths velvety or pilose.

Vernal culms 1 meter or more tall, a viscid ring below each node; primary panicles 10 to 20 cm. long; autumnal blades, 5 mm. or more wide.....37. *P. scoparium*.

Vernal culms 20 to 40 cm. tall; primary panicles 2 to 6 cm. long; autumnal blades 1 to 2 mm. wide..... 6. *P. chrysopsidifolium*.

Sheaths not velvety nor pilose.

Culms wiry, minutely crisp-puberulent; spikelets pyriform-turgid.

Spikelets 1.5 mm. long.....31. *P. pauciciliatum*.

Spikelets 2 mm. long.....22. *P. lancearium*.

Culms glabrous, or only lowermost internodes pubescent.

Spikelets glabrous, 1.6 mm. long..... 7. *P. caeruleus*.

Spikelets pubescent.

Nodes bearded; spikelets 2 mm. long .....28. *P. nitidum*.

Nodes glabrous or pubescent, not bearded.

Blades long and narrow, autumnal blades involute; spikelets papillose.

Spikelets 2 mm. long, blunt.....27. *P. neuranthum*.

Spikelets about 3.5 mm.

long, pointed.....16. *P. fusiforme*.

Blades not elongated, autumnal blades flat; spikelets not papillose.

- Blades with a white-cartilaginous margin, not ciliate; spikelets 1.5 mm. long .....44. *P. tenue*.
- Blades without white margin, ciliate toward the cordate base; spikelets scarcely over 1 mm. long, suborbicular.....13. *P. erectifolium*.
- Plants not forming winter rosettes.
- Panicles narrow and compact with appressed branches; spikelets glabrous, 1 to 2.5 mm. long.
- Culms 1 meter or more tall, compressed at base; panicle 10 to 20 cm. long; spikelets 2.5 mm. long..... 9. *P. condensum*.
- Culms 60 cm. or less tall, stiff and wiry, base not compressed; panicle less than 5 cm. long; spikelets 1 to 2 mm. long.
- Spikelets scarcely more than 1 mm. long.....40. *P. stenodes*.
- Spikelets 2 mm. long.....43. *P. tenerum*.
- Panicles open, usually diffusely spreading.
- Panicle branches in several distinct distant whorls; spikelets short-pedicelcd, remote along the branches.....26. *P. megiston*.
- Panicle branches not in distinct whorls.
- Spikelets 5 to 6 mm. long, pedicels short and stout; panicle branches few, ascending.....49. *P. zizanioides*.
- Spikelets less than 5 mm. long, pedicels slender, often capillary.
- Plants producing scaly rootstocks.
- Blades 5 to 15 cm. long; culms less than 50 cm. tall; a sea-shore grass.....34. *P. repens*.
- Blades elongated, 20 to 40 cm. long; culms 1 meter or more tall.....47. *P. virgatum cubense*.
- Plants not producing rootstocks, but culms sometimes decumbent and rooting at base.
- Spikelets glutinous, 3 mm. long .....18. *P. glutinosum*.
- Spikelets not glutinous. (See continuation 2.)
- (Continuation 2.)
- Spikelets warty-rugose, about 2 mm. long; blades ovate-lanceolate .....38. *P. sellowii*.
- Spikelets not rugose.
- Spikelets pubescent, minute (1 mm. long); blades ovate-lanceolate.....46. *P. trichoides*.
- Spikelets glabrous.
- Spikelets 1.5 mm. long, short-pedicelcd on the spreading branches of a panicle 2 to 5 cm. long; culms slender, 30 to 50 cm. high, blades 1 to 2 mm. wide.14. *P. exiguiflorum*.
- Spikelets on more or less elongated pedicels.
- Culms slender, widely decumbent-spreading; blades elliptic-lanceolate, 1 to 3 cm. long, glaucous.....30. *P. parvifolium*.

Culms not slender nor decumbent-spreading.

First glume obtuse or truncate, one-fourth the length of the acuminate spikelet..... 5. *P. chloroticum*.

First glume acute to acuminate, more than one-third the length of the spikelet.

Sheaths glabrous.

Panicle very diffuse, the branches capillary; spikelets less than 1.5 mm. long.....45. *P. tricanthum*.

Panicles scarcely diffuse, the branches not capillary; spikelets 2 mm. or more long.

Culms slender; spikelets 2 mm. long .....10. *P. diffusum*.

Culms tall and stout, 5 to 10 mm. in diameter; spikelets acuminate, about 5 mm. long ..... 3. *P. aquaticum*.

Sheaths hispid.

Annual; panicle branches divaricate ..... 4. *P. cayennense*.

Perennial; panicle branches ascending.

Spikelets 2 mm. long, panicle compact .....20. *P. hirsutum*.

Spikelets 3 mm. long, panicle loose .....21. *P. hirtivaginum*.

# 1. *Panicum acuminatum* Sw. Prod. 23. 1788.

*Panicum comophyllum* Nash, Bull. Torr. Club 30: 380. 1903.

Dry savannas, San Cristobal, August, *Wright* 3874; Herradura, *Baker & Dimmock* HC 4871, *Tracy* 9078, *Hitchcock* in 1906; Pinar del Rio, *Shafer* 320 in part, *Palmer & Riley* 447; Isle of Pines, *Curtiss* 328, 307, *Taylor* in 1901, *Palmer & Riley* 989, 1065, 1083, *Taylor* 33 in Herb. N. Y. Bot. Gard.

The type of *P. acuminatum* at Stockholm is a specimen in the autumnal state. *Wright's* 3874 in the Gray Herbarium is labeled "Low savannas, Chirigote, Nov. 2." Another specimen in the Gray Herbarium, without number, is from "Savannas, Pueblo Nuevo, San Cristobal, May 16."

# 2. *Panicum adspersum* Trin. Gram. Pan. 146. 1826.

*Wright* 3869; Santiago de las Vegas, *Baker* HC 387, 512, 1050, 1825, 2057, *Hitchcock* in 1906, *Tracy* 9109; Tricornia, *Hitchcock* in 1906; Habana, *Curtiss* 748, *Leon* 291, 570; Herradura, *Tracy* 9102; Cabañas, *Palmer & Riley* 746, 771; Matanzas, *Britton, Britton & Shafer* 596. In the Herbarium of the New York Botanical Garden are the following: Isle of Pines, *Curtiss* in 1904; Pinar del Rio, *Shafer* 504.

*Wright's* specimen in the Sauvalle Herbarium bears the secondary number 304 in addition to the distribution number. *Grisebach's* specimen bears the secondary number 304 (1865). The specimen in the Gray Herbarium bears the secondary number 269. *Trinius's* type is from Santo Domingo, sent by *Sprengel*, and is the plant from which the plate is drawn.<sup>a</sup> The spikelets are about 3 mm. long and sparsely hispidulous. The culms are geniculate and rooting below; the blades spreading and 4 to 8 cm. long. A larger form occurs in Florida, with culms as much as 1 meter high, and blades 15 cm. long and 1.5 cm. wide, the spikelets larger, as much as 4 mm. long. This is represented in Cuba by *Curtiss* 748 and *Palmer & Riley* 771. An examination of considerable material from the West Indies and Flor-

<sup>a</sup> Icon. 169.

ida shows that there are all gradations between these extremes, and there appears to be no constant character by which to separate the larger form as a species or even as a well-marked variety.

3. *Panicum aquaticum* Poir. Encycl. Suppl. 4 : 281. 1816.

*Panicum elephantipes* Nees, Agrost. Bras. 165. 1829.

San Antonio, *Hitchcock* in 1906, Habana, *Leon* 335.

Poiret's type labeled "*Panicum aquaticum* enc. suppl. \* \* \* Porto Ricco. h. Poiret" is in the herbarium of Cosson in Paris. Nees's type at Munich agrees with this.

4. *Panicum cayennense* Lam. Tabl. Encycl. 1: 173. 1791.

Among other tall grasses in low grounds, pinales, Pinar del Rio, September, *Wright* 3865; Herradura, *Tracy* 9073; Isle of Pines, *Curtiss* 267, *Palmer & Riley* 1086, *Taylor* 34.

The Grisebach specimen is from western Cuba, 1863, no. 891. A specimen of this species in the Gray Herbarium, without number, is from "Savannas, Vueltabajo, July 28."

5. *Panicum chloroticum* Nees, Agrost. Bras. 164. 1829.

Punta Brava, *Baker* HC 4054; Santiago de las Vegas, *Hitchcock* in 1906; Batabano, *Hitchcock* in 1906; Herradura, *Hitchcock* in 1906, *Tracy* 9055; *Wright* 3456 and 3860 in National Herbarium in part; *Wright* 3860 in Sauvalle Herbarium; *Wright* 181, 189 in the Grisebach Herbarium; *Wright* 3456 in Sauvalle Herbarium; edge of Lagunas, Pinar del Rio, September, *Wright* 3861.

The first two specimens cited above are like the type at Munich; the others are more or less pubescent, but appear to be otherwise the same. The type of *Panicum proliferum pilosum* Griseb. in the Grisebach Herbarium is labeled "Around lagunas in wet or damp ground, Hanabana, May 16," no. 186. This is the same as *Wright* 3860 in the Sauvalle Herbarium. Probably *P. bartowense* Scribn. & Merr.<sup>a</sup> is a form of *P. chloroticum*. It differs from the Brazilian specimen only in its hispid sheaths and from some of the hispid Cuban specimens only in its larger size. Nash's 567 from Eustis, Florida, is a low spreading form, with culm about 30 cm. long, but the blades and sheaths pubescent like *P. bartowense*. *P. dichotomiflorum* Michx.<sup>b</sup> (*P. proliferum* of American authors, not Lam.), common throughout the eastern United States, is smooth throughout, and is usually more or less geniculate-spreading at base, and the blades are usually long and gradually acuminate. In Florida this shows a tendency to become pubescent. *Combs & Rolfs* 94 from Lake City, Florida, has the habit of *P. dichotomiflorum*, but the blades are pubescent on the upper surface. The spikelets of *P. dichotomiflorum* vary in length from 2 to 3 mm. It would appear that there is one variable species, including *P. dichotomiflorum* Michx., *P. chloroticum* Nees, and *P. bartowense* Scribn. & Merr. The West Indian specimens resemble more closely *P. chloroticum* in habit, and for the present they are referred to this species. Other specimens of the same in the National Herbarium are: Bahamas, Nassau, *Curtiss* 177; Cat Cay, *Brace* 3742. Bermuda: Hamilton, *Millspaugh* 126. Porto Rico: Unado, *Britton & Cowell* 432. South America: Brazil, *Riedel* 959, *Salzmänn* (*P. hygrophilum* Salzm.); Paraguay, *Morong* 1002; Uruguay, *Arechavala*.

*Wright's* 3456 and 3861 cited above have larger spikelets than the other Cuban specimens (3 mm. long), but this appears to be a variable character. *Wright* 3456 is the type of *P. proliferum strictum* Griseb.<sup>c</sup> *Wright* 3456 in the Gray Herbarium is from "Lagunas, Almacigos, Nov. 23."

6. *Panicum chrysopsidifolium* Nash in Small, Fl. Southeast. U. S. 100. 1903.

*Wright* 3453 in part; *Wright* 3454 in part; *Wright* 3461 in part; Herradura, *Hitchcock* in 1906; Consolacion del Sur, *Palmer & Riley* 481; Isle of Pines, *Palmer & Riley* 982.

<sup>a</sup> U. S. Dept. Agr. Div. Agrost. Circ. 35 : 3. 1901.

<sup>c</sup> Cat. Pl. Cub. 232. 1866.

<sup>b</sup> Fl. Bor. Amer. 1 : 48. 1803.

The Grisebach specimen of *Wright* 3461 also belongs to this species, though it is listed by him under *P. dichotomum* variety *nodiflorum*. Another specimen of this was included by Grisebach under *P. neuranthum*; it is labeled "α forma ascendens ramosa." Wright's 3461 in the Gray Herbarium is part *P. chrysopsidifolium* and part *P. lancearium*. The two labels are, "Sandy pinales, Asiento Viejo de San Julian, Dec. 1," and "Pinal. Mayarí, July 24."

This species is distinguished from *P. neuranthum* by the pubescent culms, bearded nodes, spreading vernal panicles, and short, flat autumnal blades on zigzag stems. The spikelets are 2 mm. long. It occurs in Florida and in Porto Rico (*Heller* 982).

7. *Panicum caeruleascens* Hack. in herb.

Vernal form cespitose, of a somewhat glaucous bluish green color; culms erect or ascending, 40 to 75 cm. high, glabrous; sheaths usually less than half as long as the internodes, glabrous or the basal ones sparingly pubescent; blades ascending or spreading, commonly purplish beneath, glabrous or rarely a few hairs around the base, 5 to 8 cm. long, 4 to 7 mm. wide, the margins nearly parallel for two-thirds their length; panicles usually short-exserted, 3 to 7 mm. long, one-half as wide or less, the branches narrowly ascending; spikelets 1.5 to 1.6 mm. long, 0.9 mm. wide, obovoid, blunt, very turgid, glabrous, first glume about one-third the length of the spikelet; second glume and sterile lemma subequal, the glume scarcely as long as the fruit at maturity; fruit 1.4 mm. long, 0.8 mm. wide, ellipsoid.

Autumnal form erect or leaning, sometimes decumbent at base, producing short, densely fascicled branches at the middle and upper nodes, these tufts scarcely as long as the primary internodes, the reduced blades ascending, more or less involute; the reduced panicles with only a few long-pediceled spikelets.

Closely related to *P. roanokense*, a species of the southern Atlantic coastal plain of the United States, from which it is distinguished by the narrow panicles and smaller spikelets and by the tufted branches of the autumnal form.

The type is *Hitchcock* 706, "In glade among *Spartina*, etc., stretching up through the tall grass, Miami, Florida, April 3, 1906;" U. S. National Herbarium no. 558380. The name refers to the glaucous blue color.

In marshes and swampy woods, southern Alabama and Florida, Cuba, and the Bahamas.

*Wright* 3463 in part; Santa Clara, *Britton & Wilson* 316 in Herb. N. Y. Bot. Gard.

Wright's 3463 in the National Herbarium and in the Krug and Urban Herbarium is this species. For other species distributed as 3463, see *P. leucothrix*, *P. wrightianum*, and *P. tenue*.

Bahamas, New Providence, "in fruticetis procumbens," *Eggers* 4305.

8. *Panicum compactum* Sw. Adnot. Bot. 14. 1829.

Eastern Cuba. 1856-57, *Wright* 749; Isle of Pines, *Curtiss* 291, 520, *Palmer & Riley* 904.

This species is distinguished by its broad, usually puberulent blades and compact panicle.

9. *Panicum condensum* Nash in Small, Fl. Southeast. U. S. 93. 1903.

Low savannas, Hanabana, May 19, *Wright* 3862 in part.

In the Grisebach Herbarium there are two specimens of this species. One of them has two labels, "Low wet woods, Hanabana, May 27," no. 184 of 1865, and "Wet—among tall *Cyperaceae*, in small bunches, Hanabana, May 25." The plant is 3 feet tall, stout, with a compressed base, and narrow compact panicle. The other specimen, which is similar, is labeled, "Palm savannas, Hanabana, May 18," 1865, no. 197. This number of Wright's in the Sauvalle Herbarium and in the National Herbarium is mixed with *P. laxum*. There is a fragment of what appears to be the same, on the sheet of 3863 in the Sauvalle Herbarium. *P. condensum* is common in the southern United States and is found also in the Bahamas (*Curtiss* 174). Wright's 3862 in the

Gray Herbarium consists of *P. condensum* and *P. laxum*. Wright's 3863 in the Gray Herbarium consists of *P. condensum* and *Hymenachne auriculata*.

10. *Panicum diffusum* Sw. Prod. 23. 1788.

Wright 1540; in pastures, Retiro, July, Wright 3852; damp savannas, Retiro, October 11, Wright 3877; Santiago de las Vegas, Baker HC 350, 511, 2052, 2054, Tracy 9111, Wilson 1405; Habana, Leon 190, 305, Baker, Tracy & Hasselbring HC 3095; Triscornia, Tracy 9082; Guanajay, Palmer & Riley 802; Isle of Pines, Curtiss 384, 494. The following are in the Herbarium of the New York Botanical Garden: Santiago de las Vegas, Van Hermann 2444; Sagua, Britton & Wilson 314; Madruga, Britton & Shafer 649; Matanzas, Rugel 907.

A sheet in the National Herbarium of Wright 3860 and another marked "Cuba 3860," which appears to be a Wright plant although there is no Wright label, are in part *P. diffusum*. In the Grisebach Herbarium are three specimens marked, respectively, "In the edge of woods and margin of savannas, Hanabana, May 29," 1865, with the secondary number 191; no. 1540 from eastern Cuba, 1859; and "edge of savannas, Hanabana, May 19," in 1865, with the secondary number 190. Wright's 3877 in the Sauvalle Herbarium and in the Torrey Herbarium is part *P. exiguiflorum*.

11. *Panicum distantiflorum* Rich. in Sagra, Hist. Cub. 11: 304. 1850.

*Panicum utawanacanum* Scribn. in Millsp. Field Columb. Mus. Bot. 2: 25. 1900.

*Panicum sintenisii* Nash, Bull. Torr. Club 30: 382. 1903.

Wright 3452; Cojimar, Baker HC 267, 2902, Hitchcock in 1906; Triscornia, Tracy 9089, Hitchcock in 1906; Matanzas, Rugel 190 in Gray Herbarium, 874 in Herb. N. Y. Bot. Gard.

Grisebach's specimen from eastern Cuba, 1860, is numbered "104=3452." Another specimen, included by Grisebach under *Panicum stenodes*, is labeled, "Bushy savannas, Hanabana, May 16, in small tufts," no. 285. A third specimen, "Savannas of Guamaroca, July 25," no. 284, is also included under *P. stenodes*. A part of Wright 3870 in the National Herbarium belongs to this species. The type of Richard's species in the herbarium of the Museum at Paris agrees with Scribner's type from Guanica, Porto Rico,<sup>a</sup> a part of which is in the National Herbarium. Nash's description applies to these specimens and his type (*Sintenis* 3463) was also collected at Guanica, Porto Rico. Sintenis's 3365 and 3416, from Guanica, Porto Rico, also belong to this species.

12. *Panicum divaricatum* L. Syst. Nat. ed. 10. 2: 871. 1759.

*Panicum bambusoides* Hamilt. Prod. Ind. Occ. 10. 1826.

*Panicum chauwinii* Steud. Syn. Pl. Glum. 1: 68. 1854.

Hillsides, scandent or ascending, Velestina, September 19, Wright 748; Wright 747; Guanajay, Baker HC 4269, El Cangre, Baker HC 5198; Cojimar, Baker HC 5324, La Magdalena, Baker HC 2501, 4611; Habana, Baker HC 1837; Triscornia, Hitchcock in 1906; Herradura, Tracy 9047, 9044; Santiago de Cuba, Millspaugh 1015; Baracoa, Pollard, Palmer & Palmer 76; Isle of Pines, Millspaugh 1422, Palmer & Riley 1001; Cienfuegos, Combs 148 in Gray Herbarium. In the herbarium of the New York Botanical Garden are the following: Managua, Baker & Wilson 304; Santiago de Cuba, Underwood & Earle 1642; Taylor 327; Matanzas, Britton & Wilson 241; Isle of Pines, Curtiss in 1904.

Widely clambering over bushes. The two specimens of this in Grisebach's herbarium, called by him *P. divaricatum*, are "Prope villam Monte Verde dictam, Cuba orientalis," no. 747, and another labeled 747 $\alpha$ . These are both smooth throughout. Besides these there are two specimens with pubescent blades, which Grisebach calls *P. divaricatum* variety *puberulum*.<sup>b</sup> One is labeled "In sylvis densis, Matanzas, Cuba,

<sup>a</sup> Millspaugh, Plantae Utawanæ no. 702.

<sup>b</sup> Griseb. Fl. Brit. W. Ind. 551. 1864.



Rug. 187;" the other is *Wright* 748 from eastern Cuba. The type collected by March in Jamaica is also here. Another specimen (*Wright*, western Cuba in 1863) is marked by Grisebach as *β stenostachyum*. These last two specimens appear to be the ordinary form of *P. divaricatum*. The pubescent form can scarcely be separated even as a variety.

Hamilton's species is based on "*P. bambusoides* Herb. Prof. Desv. Porto Rico." A specimen so marked in the Desvaux Herbarium in the Museum at Paris is *P. divaricatum*. The type of *P. chaurinii* Steud. is also in the Museum at Paris.

13. ***Panicum erectifolium*** Nash, Bull. Torr. Club **23**: 148. 1896.

*Panicum sphaerocarpon floridanum* Vasey, U. S. Dept. Agr. Div. Bot. Bull. **8**: 33. 1889, not *P. floridanum* Trin. 1835.

*Wright* 3462.

The specimen in the Grisebach Herbarium is from western Cuba, 1862, and is numbered "896=3462." The specimen in the Gray Herbarium is labeled "Lagunas, Vueltabajo, July 24."

14. ***Panicum exiguiiflorum*** Griseb. Cat. Pl. Cub. 231. 1866.

*Panicum minutiflorum* Rich. in Sagra, Hist. Cub. **11**: 305. 1853, not Rasp. 1825.

*Panicum tricolor* Hack. Oesterr. Bot. Zeitschr. **51**: 370. 1901.

*Wright* 755, 3450, 3877 in part, 756 in Gray Herbarium; Pinar del Rio, *Earle & Wilson* HC 1550; Herradura, *Tracy* 9075, *Hitchcock* in 1906; La Magdalena *Baker* 1; Isle of Pines, *Taylor* 35. The following are in the Herbarium of the New York Botanical Garden: Isle of Pines, *Taylor* 35, *Curtiss* in 1904; Madrugá, *Shafer* 452.

*Wright*'s 3450 in the National Herbarium is labeled "Low savannas, Chirigote, Oct. 26;" the same number in the Gray Herbarium, "Pinales, Almácigos, July 26." The type in the Grisebach Herbarium is labeled "In bushy savannas, Hanabana, May 16," 1865. The type of Richard's species is at Paris. Grisebach has two other specimens of this, one from western Cuba, 1863, numbered "909=3450," which is the type of his *P. laxum* variety *variegatum*,<sup>a</sup> and the other, also from western Cuba, numbered "89=3450." *Wright*'s 755, "Pinales, San Juan de Buena Vista, Nov. 21, 1860-64," and no. 756, from eastern Cuba in 1856-57, both in the Gray Herbarium, are *P. exiguiiflorum*.

The type of *Panicum tricolor*, *Eggers* 3978, from Fortune Island, Bahamas, was examined at Hackel's herbarium.

15. ***Panicum fasciculatum*** Sw. Prod. 22. 1788.

*Panicum fuscum* Sw. Prod. 23. 1788.

*Panicum flavescens* Sw. Prod. 23. 1788.

*Panicum illinoiense* Desv. Opusc. 91. 1831.

Santiago de las Vegas, *Van Hermann* HC 2445, *Baker* HC 2678, 5110, *Wilson* 593; La Magdalena, *Baker* HC 3636; Herradura, *Tracy* 9091; Cienfuegos, *Pringle* 74, 124, *Combs* 252 in Gray Herbarium; *Rugel* 881 in Gray Herbarium; Habana, *Leon* 573. In the herbarium of the New York Botanical Garden are the following: Santiago de Cuba, *Taylor* 28; Baracoa, *Underwood & Earle* 839; Santiago de las Vegas, *Van Hermann* 2698b.

This appears to be a recent introduction into Cuba, where it occurs as a weed. The type specimens of Swartz's three species differ only as to size of panicle.

The specimen in the Grisebach Herbarium is from eastern Cuba in 1859 and is numbered 754. *Wright*'s 754 in Gray Herbarium is from "Roadsides near Saltadero, Aug. 4," Monte Verde, 1859.

The published source of *P. illinoiense* Desv. is "America boreali." The specimen in Desvaux's herbarium in the Museum at Paris, marked with this name in Desvaux's handwriting, is *P. fasciculatum* Sw. The sheet is also marked "hab. Carol." The locality is clearly an error.

<sup>a</sup> Cat. Pl. Cub. 233. 1866.



16. *Panicum fusiforme* nom. nov.

*Panicum neuranthum ramosum* Griseb. Cat. Pl. Cub. 232. 1866, not *P. ramosum* L. 1767.

Pine woods, Las Oblas, Pinar del Rio, September, *Wright* 3453 in part; *Wright* 3454 in part; Herradura, *Tracy* 9074, *Hitchcock* in 1906, *Baker & Dimmock* HC 4846, *Caldwell & Baker* 7139; Isle of Pines, *Curtiss* 406.

There has been much confusion in the specimens distributed by *Wright* under numbers 3453, 3454, and 3461. The *Grisebach* specimen of the above species, which is the type of his variety, is labeled "Cuba occ. Wr. 1863, 900=3454." No. 3453 is *P. neuranthum*. As distributed in various herbaria, however, *P. fusiforme* occurs in part of nos. 3453, 3454, and 3461. With these are various mixtures of *P. neuranthum*, *P. pauciciliatum*, and *P. lancearium*.

17. *Panicum geminatum* Forsk. Fl. Aegypt. Arab. 18. 1775.

*Panicum paspalodes* Pers. Syn. 1: 81. 1805.

*Panicum brizoides* Lam. Tab. Encycl. 1: 170. 1791, not L. 1771.

*Wright* 761; Santiago de las Vegas, *Hitchcock* in 1906; Batabano, *Hitchcock* in 1906; Cienfuegos, *Combs* 426 in Gray Herbarium; Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard.

No. 761 of *Wright* in the National Herbarium is labeled "Wet; around ponds, Hanabana, June 5." The *Grisebach* specimen is from eastern Cuba in 1860 and is labeled "Bunches beside water holes. Palma Sola, July 19. 99=761." Persoon's name is based on *Panicum brizoides* Lam., as he quotes *Lamarck's* diagnosis and cites his name as synonym. At Florence there is an authentic specimen of this sent by *Lamarck*, collected in Mauritius by *Commerson*. The specimen of *Panicum brizoides* in the Linnæan Herbarium is *Echinochloa colona* (L.) Link. *Doella* takes up *Paspalum appressum* Lam. Tabl. Encycl. 176. 1791, transferring it to *Panicum*, but this is invalidated by *Panicum appressum* Forsk. Fl. Aegypt. Arab. 20. 1775, and by *P. appressum* Kunth, Enum. 1: 84. 1833.

18. *Panicum glutinosum* Sw. Prod. 24. 1788.

*Panicum obtusiflorum* Rich. in Sagra, Hist. Cub. 11: 305. 1850.

*Panicum lindenii* Griseb. Cat. Pl. Cub. 233. 1866.

Shady hills, Loma Pelada, December 12, *Wright* 757; *Linden* 2143 in Paris Herbarium. *Wright's* 757 in the Gray Herbarium is from "La Perla, along roadsides." The *Grisebach* specimen is from eastern Cuba, no. 757. *P. lindenii* Griseb. is a typonym of *P. obtusiflorum* Rich., both being based on *Linden* 2143, which is in the Paris Herbarium.

19. *Panicum grisebachii* Nash, Bull. Torr. Club 35: 301. 1908.

Mountain woods, creeping-assurgent, Valetina, October 8, *Wright* 3457; Madruga, *Britton*, *Britton & Shafer* 758; San Antonio de los Baños, *Baker* HC 2853, *Hitchcock* in 1906; Pinar del Rio, *Baker* HC 3817; Matanzas, *Rugel* 187 in Herb. N. Y. Bot. Gard.

The main stem creeps along the ground, throwing up flowering branches a foot or so high. There are two *Wright* specimens of this in the *Grisebach* Herbarium, both from western Cuba, 1863, one numbered "889=3457," the other "941=3457."

20. *Panicum hirsutum* Sw. Fl. Ind. Occ. 1: 173. 1797.

Wet ground near Matanzas, July 5, *Wright* 297 in 1865 in *Grisebach* Herbarium.

A large stout grass with hirsute sheaths, glabrous blades, large, rather compact panicle, and spikelets about 2 mm. long, being similar to the type at Stockholm. In the herbarium of the New York Botanical Garden are two other West Indian specimens of this species: *Martinique*, *Duss* 768; *Guadaloupe*, *Duss* 3917.

21. *Panicum hirtivaginum* sp. nov.

Culm erect (apparently from a perennial base), ascending-hirsute, 60 to 80 cm. tall, the nodes densely hirsute; sheaths hirsute like the culms; ligule bristly; blades flat, hirsute on both surfaces or glabrescent, scarcely scabrous on the margins, elongated, erect or ascending, as much as 60 cm. long, and 12 mm. wide; panicle diffuse, 20 to 30 cm. long, branches ascending, these and the main axis glabrous or somewhat scabrous; spikelets on pedicels 1 to 3 mm. long, ovate-acuminate, glabrous, about 3 mm. long; lower glume ovate, strongly 5-nerved, somewhat over 1 mm. long; upper glume and sterile lemma equal, strongly 7 and 9-nerved, the palea of the latter delicate, about half as long; fertile lemma chartaceous, smooth, acute, nearly 2 mm. long, inrolled at the margins and including the margins of the palea; fruit brown at maturity.

Type specimen Wright 758, Cuba, U. S. National Herbarium no. 559958. Other specimens are: Santiago de las Vegas, Tracy 9116; Habana, Tracy 9068; Wright 3860 in Gray Herbarium; Cienfuegos, Combs 259 in Gray Herbarium. In the herbarium of the New York Botanical Garden are: Santiago de Cuba, Hamilton 230; Alto Cedro, Underwood & Earle 1611; Madruga, Britton & Shafer 745; Eggers 5406.

Wright's 758 is listed in Sauvalle's Flora Cubana as *P. rudgei* Roem. & Schult., which species apparently does not occur in Cuba. The two specimens of Wright 758 in the Sauvalle Herbarium are labeled "In low ground beside rivulets, savannas of Guamaroca, July 25," and "In fields, Retiro, Oct. 11." The Grisebach specimen of this species is numbered 281 and was collected in 1865.

This species differs from *P. hirsutum* Sw. in its smaller culms, hirsute blades, more diffuse panicle, and larger spikelets.

22. *Panicum lancearium* Trin. Clav. Agrost. 234. 1822.

*Panicum nashianum* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 7: 79. 1897.

Wright 3460; Wright 3461 in part.

Wright's 3460 and 3461 in part, in the Krug and Urban Herbarium belong to this species. There is a specimen of this in the Grisebach Herbarium from eastern Cuba, numbered "101=3460" and labeled "*Panicum dichotomum* var. *nodiflorum* Lam. forma *glabresc.*". Wright's 3460 in the Gray Herbarium is labeled "Pinal. San Juan de Buenavista, Nov. 21."

23. *Panicum laxum* Sw. Prod. 23. 1788.

*Panicum agrostidiforme* Lam. Tabl. Encycl. 1: 172. 1791.

*Panicum tenuiculmum* Meyer, Prim. Fl. Esseq. 58: 1818.

*Panicum polygonatum* Schrad. in Schult. Mant. 2: 256. 1824.

*Panicum diandrum* Kunth, Rev. Gram. 2: 323. 1829.

*Panicum ramuliflorum* Hochst.; Steud. Syn. Pl. Glum. 1: 65. 1854.

Wright 759, 3856, 3862 in part, 3863 in part; Santiago de Las Vegas, Tracy 9114, Hitchcock in 1906; Guanabacoa, Leon 190; Las Acostas, Baker HC 5240; Province Santa Clara, Baker HC 2477, 2482; Isle of Pines, Palmer & Riley 1069, Taylor 37, Curtiss 464; Ilerradura, Hitchcock in 1906, Tracy 9059, 9062, 9072, 9099, Caldwell & Baker 7136; Pinar del Rio, Baker HC 1699; Cienfuegos, Combs 321 in Gray Herbarium. The following are in the Herbarium of the New York Botanical Garden: Pinar del Rio, Shafer 323; Isle of Pines, Curtiss in 1904; Sagua, Britton & Wilson 300; Guajay, Earle & Wilson 343.

Wright's 759 in National Herbarium is labeled "Savannas, Retiro, Oct. 11." There are four specimens in the Grisebach Herbarium: Western Cuba, collected in 1863, "893=759;" eastern Cuba, 1859, no. 759; "Hanabana, May 22, 1865, 189;" "Wet—among tall Cyperaceae, Hanabana, May 25, 1865, 196." Wright's 3862 in the Gray Herbarium consists of two specimens, one of which is *P. laxum*, the other *P. condensum*. Wright's 759 in the Gray Herbarium has three printed blank labels, for the years 1856–57, 1859, and 1860–61.

The type of *P. agrostidiforme* Lam. was examined at the Lamarck Herbarium in the Museum at Paris; those of *P. polygonatum* Schrad. and *P. diandrum* Kunth at Halle, among specimens loaned to Professor Mez by the Berlin Herbarium. A specimen of *P. tenuiculmum* from Meyer is in the Trinius Herbarium; the type of *P. ramuliflorum* Hochst. ("Pl. Kappler surin. nr. 1523") is in the Herbarium at Munich. All these agree with Swartz's type.

24. *Panicum leucothrix* Nash, Bull. Torr. Club **24**: 41. 1897.

Herradura, *Hitchcock* in 1906.

In the Grisebach Herbarium is a specimen of this from western Cuba, 1863, numbered "923=3463." For other species distributed as 3463, see *P. wrightianum*, *P. tenue*, and *P. caerulescens*.

25. *Panicum maximum* Jacq. Coll. **1**: 76. 1786.

*Panicum laeve* Lam. Tabl. Encycl. **1**: 172. 1791.

*Panicum trichocondylum* Steud. Syn. Pl. Glum. **1**: 74. 1854.

Santiago de las Vegas, *Wilson* 438, *Baker & Wilson* 682, *Hitchcock* in 1906; Madruga, *Shafer*; Guanabacoa, *Leon* 189; Guanajay, *Palmer & Riley* 816; San Diego de los Baños, *Palmer & Riley* 542, 545; El Guama, *Palmer & Riley* 178; Pinar del Río, *Wilson* 1770, *Palmer & Riley* 377; Herradura, *Hitchcock* in 1906; Santiago de Cuba, *Pollard, Palmer & Palmer* 283; Cienfuegos, *Combs* 294 in Gray Herbarium; Guines, *Leon* 427. In the Herbarium of the New York Botanical Garden are: Santiago de Cuba, *Underwood & Earle* 162; Matanzas, *Britton & Shafer* 113.

The type of *P. laeve* Lam., labeled "de Ste. Dominique" in the Lamarck Herbarium and that of *P. trichocondylum* Steud., labeled "Ins. Guadaloup. Duchaussing" are in the Museum at Paris.

Cultivated for forage and frequently escaped into waste land.

26. *Panicum megiston* Schult. Mant. **2**: 248. 1824.

*Panicum altissimum* Meyer, Prim. Fl. Esseq. 63. 1818, not Brous. 1805.

On tembladeros in lagunas, St. Cruz de los Piños, July, *Wright* 3872.

27. *Panicum neuranthum* Griseb. Cat. Pl. Cub. 232. 1866.

*Wright* 3453 in part.

The type specimen in the Grisebach Herbarium is from eastern Cuba, 1860, numbered "103=3453." The specimen in the Gray Herbarium is labeled, "Cuchillos de Baracoa, June 20." This species is distinguished from others of the Angustifolium group by the smooth culms and nodes, involute blades, and narrow panicles, and by spikelets 2 mm. long. *P. neuranthum* also occurs in southern Florida: Sanibel Island, *Simpson* 298; Braidentown, *Tracy* 6711; Clearwater, *Tracy* 7166; *Rugel* 290; Miami; *Hitchcock* 705, 710; Alligator Harbor, *Tracy* 7176.

28. *Panicum nitidum* Lam. Tabl. Encycl. **1**: 172. 1791.

*Panicum subbarbulatum* Scribn. & Merr. U.S. Dept. Agr. Div. Agrost. Circ. **29**: 9. 1901. *Wright* 3459.

The specimen in the Sauvalle Herbarium is fragmentary, but the specimen in the Kew Herbarium is more complete. *Wright's* 3459 in the Gray Herbarium is partly this and partly *P. parvifolium*.

29. *Panicum numidianum* Lam. Tabl. Encycl. **1**: 172. 1791.

*Panicum barbinode* Trin. Mem. Acad. Petersb. VI. **3**<sup>2</sup>: 256. 1835.

*Panicum equinum* Salzm.; Steud. Syn. Pl. Glum. **1**: 67. 1854.

Wet places in savannas, Pinar del Río, October, *Wright* 1545; Puentes Grandes, *Leon* 283; Cienfuegos, *Pringle* 26, Habana, *Leon* 568. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Underwood & Earle* 163; Matanzas, *Britton & Shafer* 512; *Eggers* 4870.

The Grisebach specimen is from eastern Cuba, 1859, no. 1545. This species has been referred to *P. molle* Sw., but the latter is a quite different Brazilian species. It may be that *P. muticum* Forsk.<sup>a</sup> is an older name for this species.

Salzmann's specimen from Bahia, upon which *Panicum equinum* is based, is in the herbarium of Professor van Heurck at Antwerp; a duplicate is in the herbarium at Florence. The specimen from *Reugger*, Paraguay, also cited by Steudel, is in the herbarium of the Museum at Paris, and also belongs to this species.

30. *Panicum parvifolium* Lam. Tabl. Encycl. 1: 173. 1791.

*Wright* 3458; Herradura, *Tracy* 9060, 9079, *Hitchcock* in 1906, *Shafer*; Pinar del Rio, *Shafer* 430 in Herb. N. Y. Bot. Gard.

The Grisebach specimens are from western Cuba, 1863, numbered, "901=3458" and "927=3458." This is listed by Grisebach<sup>b</sup> as *P. cyanescens*. The type of *P. parvifolium* is in the Lamarck Herbarium at Paris. *Wright* 3458 in the Gray Herbarium is labeled "In lagunas (ponds) Los Almacigos, July 28," and "On tembladeros in lagunas, Asiento Viejo de San Julian, Nov."

31. *Panicum pauciliatum* Ashe, Journ. Elisha Mitch. Soc. 16: 87. 1900.

On crumbling banks, Loma Pelada, November 20, *Wright* 3876.

There is some material of this species mixed with *Wright* 3461 in the Krug and Urban Herbarium. This species occurs also in Porto Rico (*Heller & Heller* 982b, 639, *Underwood & Griggs* 955), and is common in the Atlantic coastal plain of the southern United States.

32. *Panicum pilosum* Sw. Prod. 22. 1788.

*Panicum distichum* Lam. Encycl. 4: 731. 1797.

*Panicum pilisparsum* Meyer, Prim. Fl. Esseq. 57. 1818.

*Wright* 3457; Herradura, *Van Hermann* HC 763, *Tracy* 9063; Isle of Pines, *Curtiss* 305, *Taylor* 36 in Gray Herbarium.

There seems to be an error in the number of the *Wright* specimen. It is published as 3451 in Grisebach's catalogue and in *Flora Cubana*, and the specimen is so numbered in the Kew and the Grisebach herbaria, but in the Sauvalle and the Berlin herbaria the number is 3457. The Grisebach specimen is from western Cuba, 1863, numbered "888=3451."

The hairs on the rachis are variable. *Curtiss*'s 305 in the National Herbarium is without hairs; the same number in the herbarium of the Cuba Experiment Station has hairs on some of the spikes. *Wright*'s 3451 in the Gray Herbarium is from "Retiro, July 15, in woods (damp)."

33. *Panicum polycaulon* Nash, Bull. Torr. Club 24: 200. 1897.

*Wright* 3875 in National Herbarium; Herradura, *Hitchcock* in 1906; *Shafer* 480 in Herb. N. Y. Bot. Gard.; Isle of Pines, *Palmer & Riley* 990.

34. *Panicum repens* L. Sp. Pl. ed. 2. 87. 1762.

Habana, *Leon* 296, 563.

35. *Panicum reptans* L. Syst. Nat. ed. 10. 2: 870. 1759.

*Panicum grossarium* L. op. cit. 871.

*Panicum caespitosum* Sw. Fl. Ind. Occ. 1: 140. 1797.

*Panicum prostratum* Lam. Tabl. Encycl. 1: 171. 1791.

*Panicum insularum* Steud. Syn. Pl. Glum. 1: 160. 1854.

*Wright* 762, 763, 3857; Habana, *Leon* 276, 292, 297, 566, 576, *Curtiss* 691, *Hitchcock* in 1906; San Antonio, *Hitchcock* in 1906; Baracoa, *Pollard, Palmer & Palmer* 19; Madruga, *Curtiss* 536; Colon, *Baker* HC 3588; Herradura, *Tracy* 9103; Cienfuegos, *Pringle* 73; *Combs* 253 in Gray Herbarium; Yumury Valley, *Rugel* 1985 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: La Magdalena, *Earle & Baker* 2455; Baracoa, *Underwood & Earle* 1391; Yumury Mountains, *Rugel* 195.

<sup>a</sup> Fl. Aegypt. Arab. 20. 1775.

<sup>b</sup> Cat. Pl. Cub. 233. 1866.

The Grisebach specimen from eastern Cuba, 1860, is numbered "105=762." The types of the above synonyms are all identical.<sup>a</sup> The West Indian grass commonly known as *P. grossarium* is *P. adspersum* Trin.

The type of *Panicum insularum* Steud. labeled "Antillae minores, Hohenacker" is in the Museum at Paris.

36. *Panicum rugelii* Griseb. Cat. Pl. Cub. 233. 1866.

Shady woods, Valestina, September 27, *Wright* 3465; Pinar del Rio, *Baker* HC 3790; San Antonio, *Hitchcock* in 1906; Matanzas, *Britton* & *Shafer* 106 in Herb. N. Y. Bot. Gard.

Creeping flat along the surface of the ground in shady woods, the leaves distinctly dorso-ventral, more or less pubescent. In the Grisebach Herbarium is *Rugel* 188 from Matanzas, the type specimen, and *Wright* 3465. A duplicate type is in the Gray Herbarium.

37. *Panicum scoparium* Lam. Encycl. 4: 444. 1797.

*Panicum viscidum* Ell. Bot. S. C. & Ga. 1: 123. 1816.

*Wright* 3467.

The specimen with this number in the Grisebach Herbarium is the same. The specimen in the Gray Herbarium is labeled "In loose bunches, road to Pinal Mayarí, Aug. 4."

38. *Panicum sellovii* Nees, Agrost. Bras. 153. 1829.

*Panicum lasianthum* Trin. Icon. 245. 1835.

*Panicum valenzuelanum* Rich. in Sagra, Hist. Cuba 11: 304. 1850.

Wet savannas, Hanabana, May 17, *Wright* 3462; *Wright* 3455; edge of thickets in pinales, Pinar del Rio, September, *Wright* 3855; *Shafer* 561 in Herb. N. Y. Bot. Gard.; Herradura, *Tracy* 9098, *Hitchcock* in 1906.

Grisebach's specimen, which is from western Cuba, 1863, and is numbered "935=3455," is the type of *P. rugulosum hirtiglume* Griseb.<sup>b</sup> *Wright*'s 3855 in the Sauvalle Herbarium has a second label which reads, "Low, wet ground beside rivulets, Pinar del Rio, Oct." *Wright*'s 3455 in the Gray Herbarium is labeled "Pinales, La Catalina, Sept. 11," and "Pinal, Rangel, Aug. 6." *P. rugulosum* Trin.<sup>c</sup> has glabrous spikelets. This has not been found in Cuba. The type of *P. sellovii* in the Berlin Herbarium agrees with the type of *P. lasianthum* in the Trinius Herbarium. In the latter herbarium is also a portion of the type of *P. sellovii*. The type of Richard's species is at Paris.

39. *Panicum sloanei* Griseb. Fl. Brit. W. Ind. 551. 1864.

Hillsides, scant or trailing, Valestina, September 27, *Wright* 3878; near Habana, *Britton* & *Shafer* 115, 759, Guanajay, *Baker* HC 4587, 4592; San Antonio, *Hitchcock* in 1906; Cienfuegos, *Combs* 55 in Gray Herbarium; *Rugel* 872 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Matanzas, *Britton* & *Wilson* 121, 393; *Rugel* 868; Santiago de Cuba, *Taylor* 328; Madruga, *Britton* & *Shafer* 759; Isle of Pines, *Taylor* 22.

Leaf blades larger and broader and panicle larger and more widely spreading than in *P. divaricatum*. In the Grisebach Herbarium are two specimens, "In sylvis densis, Matanzas, *Rugel* 872," and "Woods, Hanabana, June 17, 1865," *Wright* 269. A specimen in the herbarium of the New York Botanical Garden from Matanzas (*Britton* & *Shafer* 586) is doubtfully referred here.

<sup>a</sup> For a discussion see Contr. Nat. Herb. 12: 119. 1908.

<sup>b</sup> Cat. Pl. Cub. 233. 1866.

<sup>c</sup> Gram. Pan. 195. 1826.

40. *Panicum stenodes* Griseb. Fl. Brit. W. Ind. 547. 1864.

Low, wet pine woods, El Salado, August, *Wright* 3871; Herradura, *Hitchcock* in 1906, *Baker & Abarca* HC 4192, *Baker* HC 2956, Habana, *Leon* 567; Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard.

The Grisebach specimen is labeled "Sandy ground in the Cienaga, Hanabana, May 17," no. 192. Two other specimens, 284 and 285, included by Grisebach in this cover, are *P. distantiflorum*. *P. caricoides* Nees<sup>a</sup> differs in having larger spikelets (2 mm. long) with bristles at apex of pedicel, and flat blades, villous on upper surface, as shown by the type in the Munich Herbarium and a portion in the Trinius Herbarium.

41. *Panicum strigosum* Muhl.; Ell. Bot. S. C. & Ga. 1: 126. 1816.

Savannas around base of palms, Daganiguas, September, *Wright* 3875; El Guama, *Palmer & Riley* 213.

*Wright's* 3875 in the National Herbarium is *P. polycaulon*.

42. *Panicum swartzianum* Hitchc. Contr. Nat. Herb. 12: 140. 1908.

*Panicum lanatum* Sw. Prod. 24. 1788, not Rottb. 1776.

Santiago de Cuba, *Hamilton* 218 in Herb. N. Y. Bot. Gard.

43. *Panicum tenerum* Beyrich; Trin. Mem. Acad. Petersb. VI. 3: 341. 1835.

In dense bunches in dried-up ponds, Pinar del Rio, December, *Wright* 188; Herradura, *Baker & Dimmock* HC 4837, *Hitchcock* in 1906, *Tracy* 9080; "a tall branching grass in deepish water of lagunas, Pinar del Rio, Sept.," *Wright* 3870 in National Herbarium.

*Wright's* 188 is mixed with *P. distantiflorum* and has, in addition to the label quoted, another, "Savannas of Guamaroca, July 28." *Wright's* 3870 is also mixed with *P. distantiflorum*. The Florida specimens of *P. tenerum* have been going under the name of *P. stenodes*. *Wright's* 3860 in the Gray Herbarium is *P. tenerum*.

44. *Panicum tenue* Muhl. Gram. 118. 1817.

*Panicum albomarginatum* Nash, Bull. Torr. Club 24: 40. 1897.

Sandy pine woods, Pinar del Rio, September, *Wright* 3463 in part; Herradura, *Shafer* 560, *Baker* HC 2967, 2973, 2977, *Hitchcock* in 1906; Pinar del Rio, *Shafer* 320 in part; Isle of Pines, *Taylor* 32.

For other specimens distributed as *Wright* 3463, see *P. caeruleascens*, *P. leucothrix*, and *P. wrightianum*.

45. *Panicum tricanthum* Nees, Agrost. Bras. 210. 1829.

*Wright* 753; Habana, *Curtiss* 598; Vento, *Leon* 557.

No. 753 of *Wright* in the National Herbarium is labeled "In large, loose bunches beside the river Agabama Guinia, Trinidad, May 5." The specimen in the Grisebach Herbarium is from western Cuba, 1863, and is numbered "948=753." In the Gray Herbarium there are two specimens, "Villa Clara, Macagua, Jan. 21," 1860-64, and "Santa Isabel, along rivulets," eastern Cuba, in 1856-57.

46. *Panicum trichoides* Sw. Prod. 24. 1788.

Prope villam Monte Verde dictam, Cuba Orientali, 1859, *Wright* 1538, in Gray Herbarium; Habana, *Curtiss* 714, *Britton & Wilson* 510; Guanabacoa, *Leon* 206.

A weed in cultivated soil. *P. brevifolium* L., to which our species has been referred, is from India (*P. ovalifolium* Poir. as described in Hooker's Flora of British India).

47. *Panicum virgatum cubense* Griseb. Cat. Pl. Cub. 233. 1866.

*Panicum virgatum obtusum* Wood, Bot. & Flor. 392. 1874.

*Panicum virgatum breviramisum* Nash, Bull. Torr. Club 23: 150. 1896.

<sup>a</sup> Trin. Gram. Pan. 149. 1826.



Marshes, Hanabana, May 27, *Wright* 3873; Batabano, *Baker* HC 2763, *Hitchcock* in 1906, *Palmer & Riley* 1134.

*Wright's* specimen in the Sauvalle Herbarium has also the secondary number 183. In the Grisebach Herbarium this occurs with the number 183 and is labeled *Panicum virgatum* variety *cubense*, "Low savannas, Hanabana, May 19." This form is characterized by the more obtuse spikelets, narrower panicle, and culms solitary or few in a clump.

48. *Panicum wrightianum* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 11: 44. 1898.

*Panicum minutulum* Desv. Opusc. 87. 1831, not Gaud. 1826.

*Wright* 3463 in National Herbarium.

There is a specimen of this species in the Grisebach Herbarium from western Cuba, 1863, numbered "895=3463," and bearing the note "Spiculis puberulis." *Wright's* 3463 in the Boissier and in the Kew Herbarium consists of this species and *P. leucothrix*. It is to be noted that *P. tenue* and *P. caerulescens* are also distributed in various herbaria as *Wright* 3463. *Wright's* 3463 in the Gray Herbarium is labeled "Lagunas, Vueltabajo, July 24." The sheet also bears a small plant of *P. leucothrix*.

49. *Panicum zizanioides* H. B. K. Nov. Gen. & Sp. 1: 100. 1816.

*Panicum oryzoides* Sw. Prod. 23. 1788, not Ard. 1764.

*Wright* 3466; Laguna Castellano, *Baker* HC 4335.

Grisebach's specimen of *Wright* 3466 is also without locality.

### 33. *ICHNANTHUS* Beauv. Agrost. 56. pl. 12. f. 1. 1812.

Blades, especially those of sterile shoots, contracted into petiole-like

bases, as much as 1 cm. long.....4. *I. wrightii*.

Blades not contracted into petiole-like bases.

First glume as long as spikelet; stem creeping, blades ovate.....2. *I. nemorosus*.

First glume one-half to three-fourths as long as spikelet; stem ascending.

Blades narrowly linear-lanceolate, thick and firm.....1. *I. mayarensis*.

Blades ovate-lanceolate, thin, usually 10 to 15 mm. wide...3. *I. pallens*.

#### 1. *Ichnanthus mayarensis* (Wright).

*Panicum mayarense* Wright, Anal. Acad. Cienc. Habana 8: 206. 1871; Sauv. Fl. Cub. 197.

Pinales de Mayarí, July 24, and Mayarí Abajo, August 2 (1860-64), *Wright* 3468 in Gray Herbarium.

This species is represented by two sheets, as noted above, the second of which, marked Mayarí Abajo, is the type, as this locality agrees with that published. This number has been found in no other herbarium. The fertile lemma is slightly over 2 mm. (2.2 mm.) long, and the margins do not meet except at the tip, thus exposing a narrow strip of the palea. The scars at the base are small and the wings are wanting.

#### 2. *Ichnanthus nemorosus* (Sw.) Doell in Mart. Fl. Bras. 2: 289. 1877.

*Panicum nemorosum* Sw. Prod. 22. 1788.

In dense woods, Retiro, November 20, *Wright* 3881; damp woods near the Mogote de Mono, October 8, *Wright* 3882; shady banks of Rio Sico in Arroyo Hondo, Pinar del Rio, December, *Wright* 3858.

#### 3. *Ichnanthus pallens* (Sw.) Munro; Benth. Fl. Hongk. 414. 1861.

*Panicum pallens* Sw. Prod. 23. 1788.

*Wright* 750; El Guama, *Palmer & Riley* 130, 218; Baracoa, *Pollard, Palmer & Palmer* 15. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Taylor* 385, 526, *Hamilton* 215; Baracoa, *Underwood & Earle* 267; El Sigual, *Eggers* 4661.



There are four specimens of this in the Grisebach Herbarium: No. 750 labeled "Prope villam Monte Verde dictam. Cuba orientali;" another numbered 750 from eastern Cuba, 1856-57; a Wright specimen without number or locality collected in 1860-64; and a specimen with proliferous spikelets, numbered 887, "Cuba occ. Wr. 1863." This species not infrequently occurs with proliferous spikelets, as in *Palmer & Riley* 130 cited above. The spikelets then consist of many sterile lemmas and the plants appear as if belonging to the tribe Festuceae.

4. *Ichnananthus wrightii* sp. nov.

Culms slender, prostrate-spreading, more or less rooting at the nodes, glabrous or sparsely villous, 20 to 30 cm. long; sheaths mostly less than half the length of the internodes, striate-nerved, villous on the margins, otherwise glabrous or nearly so; blades ovate-lanceolate, striate-nerved, faintly 3 to 5-ribbed, glabrous, 12 to 30 mm. long, 2 to 8 mm. wide on the sterile shoots, somewhat larger and thicker on the ascending flowering culms, all abruptly or cordately narrowed into a slender stalk 1 to 5 mm. long on the fertile culms, or as much as 15 mm. long on the sterile shoots; panicles 4 to 8 cm. long, consisting of a few spike-like racemes, 0.5 to 2 cm. long; spikelets 3 mm. long, glabrous, the pedicel minutely pubescent; lower glume about half the length of the spikelet, 3-nerved; second glume and sterile lemma equal, acuminate, strongly 5-nerved; fertile lemma scarcely 2 mm. long, the edges meeting and covering the palea, except at the very base, the outer margin of the base of the lemma bearing a scar at each side, but no wings.

Wright's 3880. U. S. National Herbarium no. 559959 of this collection is the type. The specimen in the Sauvalle Herbarium is labeled, "Under overhanging rocks (damp) and around base of palms beside the Rio Seco in Arroyo Honda, Pinar del Rio, Dec." The Grisebach specimen consists of a single spikelet in a packet, labeled "Echinolaena Sp." no. 760. In the Kew Herbarium there are four specimens numbered 2, 23, 244, 760. Nos. 760 and 3880 are also in the Gray Herbarium. This species is allied to *I. mayarensis*.

34. *TRICHOLAENA* Schrad. in Schult. Mant. 2: 163. 1824.

1. *Tricholaena rosea* Nees, Cat. Sem. Hort. Vratisl. 1835.

*Britton, Britton & Shafer* 533.

Sparingly introduced.

35. *OPLISMENUS* Beauv. Fl. Owar. 2: 14. t. 58. 1804.

1. *Oplismenus hirtellus* (L.) Roem. & Schult. Syst. 2: 481. 1817.

*Panicum hirtellum* L. Syst. Nat. ed. 10. 2: 870. 1759.

*Panicum setarium* Lam. Tabl. Encycl. 1: 170. 1791.

Woods, Hanabana, June 1, *Wright* 1543; damp woods, Monte Verde, March, *Wright* 751; Santiago de las Vegas, *Baker* HC 5051, *Hitchcock* in 1906; San Antonio, *Hitchcock* in 1906; Guanajay, *Baker* HC 3461; Habana, *Curtiss* 593, *Leon* 556; Matanzas, *Palmer & Riley* 12; Cienfuegos, *Pringle* 76; *Combs* 667 in Gray Herbarium; El Guama, *Palmer & Riley* 146; Isle of Pines, *Curtiss* 268; Matanzas, *Rugel* 189 in Gray Herbarium. In the herbarium of the New York Botanical Garden are the following: Matanzas, *Britton & Shafer* 221; Santiago de Cuba, *Taylor* 422, 481.

Wright's numbers 751 and 1543 in the Grisebach Herbarium are from eastern Cuba, 1859. The latter is numbered 1593 in Sauvalle's Flora Cubana.

It is quite possible that the specimens here included may be referred to distinct species. The type of *Panicum setarium* Lam. at Paris resembles Wright's 1543. The blades are short and the clusters of spikelets globose and few-flowered. *Wright* 751 and *Curtiss* 268 and 593 have larger and longer blades and spikes, but some of the other specimens are intermediate.

**36. CHAETOCHLOA** Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 38. 1897.

Bristles retrorsely barbed; plant annual.....6. *C. verticillata*.

Bristles antrorsely barbed; plants perennial.

Culms pilose.....1. *C. hispida*.

Culms glabrous.

Inflorescence dense and spike-like; involucrel bristles 5 or more.

Bristles scarcely exceeding the spikelets; racemes

slender.....4. *C. purpurascens*.

Bristles 2 to 4 times as long as spikelets; racemes

thick.....2. *C. imberbis*.

Inflorescence comparatively loose; involucrel bristles 1 to 3.

First glume 5-nerved, second 9 to 11-nerved.....3. *C. onurus*.

First glume 3-nerved, second 5-nerved.....5. *C. setosa*.

**1. Chaetochloa hispida** Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 25. 1900.

Sandy pine woods, La Grijia, Nueva Filipina, January, Wright in 1865, in the Gray Herbarium.

**2. Chaetochloa imberbis** (Poir.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Panicum imberbe* Poir. Encycl. Suppl. 4: 272. 1817.

Savannas, Chirigote, June 13, Wright 3472, 3473; Santiago de las Vegas, Baker HC 518, 561, 636, 1358, Hitchcock in 1906; Habana, Curtiss 749, Leon 269, Tracy 9112; San Diego de los Baños, Palmer & Riley 546; Herradura, Baker HC 2965, Hitchcock in 1906; Isle of Pines, Taylor 45. The following are in the herbarium of the New York Botanical Garden: Matanzas, Britton & Wilson 170, Britton & Shafer 244; Sagua, Britton & Wilson 319; Madruga, Shafer 454.

The species of *Chaetochloa* here considered are accepted as defined by Scribner and Merrill.<sup>a</sup> I have not seen the type of *Panicum imberbe* Poir. nor of *Panicum geniculatum* Lam., which may be an older name for the same.

In the Grisebach Herbarium are the following Wright specimens: 1. "Wet ground around lagunas, Ilanabana, May 16," no. 199 of 1865, a prostrate bunch with culms 15 to 20 cm. long. The bristles are only a little longer than the spikelets, the spikes about 1 cm. long, the blades without the scattered long hairs on the upper surface found in most of the specimens. 2. No. 200 of 1865, which Grisebach has labeled *Setaria glauca* α. This also has short bristles. 3. No. 3472, 1860-64, bristles short. 4. No. 3473, 1860-64, bristles about 5 mm. long.

**2a. Chaetochloa imberbis penicillata** (Nees) Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 11. 1900.

*Panicum penicillatum* Nees, Agrost. Bras. 242. 1829.

Matanzas, July 7, Wright 3888; Santiago de las Vegas, Baker 522, 1276; Guines, Leon 428.

This differs from *C. imberbis* chiefly in having longer bristles.

**3. Chaetochloa onurus** (Willd.) Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 27. 1900.

*Panicum onurus* Willd.: Nees, Agrost. Bras. 251. 1829, as synonym.

*Setaria onurus* Griseb. Fl. Brit. W. Ind. 555. 1864.

Wright 3474; Wright 182; Wright 3887 in National Herbarium (3487 in Sauv. Fl. Cub.); Tricornia, Tracy 9090; Cienfuegos, Combs 264 in Gray Herbarium. The following are

<sup>a</sup> U. S. Dept. Agr. Div. Agrost. Bull. 21: 10. 1900.

in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Taylor* 232; *Madriga*, *Shafer* 453; *Matanzas*, *Britton & Wilson* 29.

In the Grisebach Herbarium are two Wright specimens of this species, "Savannas of Guanacaro, July 28," no. 287 of 1865, and no. 3474 of 1860 to 1864.

4. *Chaetochloa purpurascens* (H. B. K.) Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 13. 1900.

*Setaria purpurascens* H. B. K. Nov. Gen. & Sp. 1: 110. 1816.

*Batabano*, *Shafer* 487; *Jaguey*, *Eggers* 5320 in Herb. N. Y. Bot. Gard.

5. *Chaetochloa setosa* (Sw.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Panicum setosum* Sw. Prod. 22. 1788.

Isle of Pines, *Palmer & Riley* 1000 in Herb. N. Y. Bot. Gard.; Santiago de Cuba, *Taylor* 13, 71; *Matanzas*, *Rugel* 880.

6. *Chaetochloa verticillata* (L.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Panicum verticillatum* L. Sp. Pl. ed. 2. 82. 1762.

*Habana*, *Curtiss* 693, *Hitchcock* in 1906, *Baker*, HC 2675, *Leon* 555.

A weed in the Botanical Garden.

### 37. *CENCHRUS* L. Sp. Pl. 1049. 1753.

Blades crowded, short, stiff, conspicuously distichous.....2. *C. distichophyllus*.  
Blades not crowded, stiff, nor distichous.

Basal bristles of burs stout.....1. *C. carolinianus*.

Basal bristles of burs numerous, slender.

Burs 12 mm. or more wide, lobes erect.....3. *C. echinatus*.

Burs not over 8 mm. wide, lobes interlocking.....4. *C. viridis*.

1. *Cenchrus carolinianus* Walt. Fl. Car. 79. 1788.

*Cenchrus tribuloides* L. err. det. Griseb. Fl. Brit. W. Ind. 556. 1864.

*Cojimar*, *Hitchcock* in 1906; *Tricornia*, *Hitchcock* in 1906; *Guanajay*, *Palmer & Riley* 781; *Habana*, *Palmer & Riley* 1146; *Wright* 3476 in Gray Herbarium.

2. *Cenchrus distichophyllus* Griseb. Cat. Pl. Cub. 234. 1866.

*Wright* 3475.

The Grisebach specimen, which is the type of this species, is from western Cuba, 1863, numbered "916=3475." *Wright's* 3475 in the Gray Herbarium is from "Pinales, Guanés, Remates, Dec."

3. *Cenchrus echinatus* L. Sp. Pl. 1050. 1753.

*Santiago de las Vegas*, *Hitchcock* in 1906; *Guanajay*, *Palmer & Riley* 679; *Isle of Pines*, *Taylor* 24; *Santiago de Cuba*, *Taylor* 24 in Herb. N. Y. Bot. Gard.

4. *Cenchrus viridis* Spreng. Syst. 1: 301. 1825.

*Wright* 3889; *Guanajay*, *Palmer & Riley* 665; *Santiago de Cuba*, *Millsbaugh* 1110, *Pollard*, *Palmer & Palmer* 284; *Wright* 3476 in Grisebach Herbarium; *Cienfuegos*, *Combs* 597 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: *Matanzas*, *Britton & Shafer* 127; *Santiago de Cuba*, *Underwood & Earle* 168. *Wright* 3889 is listed in Sauvalle's *Flora Cubana* as "*Andropogon* Sp.?" It would seem that there must be some error in numbering, but this number in the Gray Herbarium is also *Cenchrus*.

*Cenchrus viridis* may be distinguished from *C. echinatus* by the smaller burs and more incurved involucre lobes.

38. **PENNISETUM** Rich. in Pers. Syn. 1: 72. 1805.<sup>a</sup>

Spike loose; bristles all naked.....1. *P. domingense*.  
 Spike narrow, dense; some of the bristles plumose.....2. *P. setosum*.

1. **Pennisetum domingense** (Spreng.) Spreng. Syst. 1: 302. 1825.

*Gymnothrix domingensis* Spreng.; Schult. Mant. 2: 284. 1824.

Eastern Cuba, *Wright* 1547 in 1857 in the Grisebach and Gray herbaria.

2. **Pennisetum setosum** (Sw.) Rich. in Pers. Syn. 1: 72. 1805.

*Cenchrus setosus* Sw. Prod. 26. 1788.

In thickets skirting pine woods, Pinar del Rio, *Wright* 3471.

The Grisebach specimen is from eastern Cuba, numbered "111=3475." *Wright's* 3471 in the Gray Herbarium is labeled "Edge of savannas, San Juan de Buenavista, Nov. 24."

39. **CHAETIUM** Nees, Agrost. Bras. 269. 1829.1. **Chaetium cubanum** (Wright).

*Perotis? cubana* Wright, Anal. Acad. Cienc. Habana 8: 288. 1871; Sauv. Fl. Cub. 202. *Wright* 735 in Gray Herbarium.

The locality is not indicated except that the collection was made in eastern Cuba in 1856-57. This is referred by Doell<sup>b</sup> to *Panicum chaetium* Steud. (*Chaetium festucoides* Nees), but it differs in many respects. The blades are short and narrow, mostly involute; the inflorescence is loose, the spikelets few and distant, narrowed to a pedicel 1.5 mm. long, strongly bearded at the base; first glume very narrow, 22 mm. long including awn, 3-nerved at base; second glume 5-nerved, 18 mm. long, including awn; sterile lemma and fertile lemma thin, 3-nerved, awnless, 4.5 mm. long.

40. **PARATHERIA** Griseb. Cat. Pl. Cub. 236. 1866.<sup>c</sup>1. **Paratheria prostrata** Griseb. Cat. Pl. Cub. 236. 1866.

*Panicum leptochyrium* Doell in Mart. Fl. Bras. 2<sup>2</sup>: 150. 1877.

*Wright* 3906; Isle of Pines, *Curtiss* 461.

The Grisebach specimen, which is the type, bears the secondary number 207, and was collected in 1865. This is listed in Sauvalle's Flora Cubana as *Chamaeraphis parvigluma* Munro, a nomen nudum, and the Wright number is misprinted 3909. In the Gray Herbarium is a specimen of this species from Santarem, Pará, collected by Spruce, which agrees with *Curtiss* 461 in being more pubescent than the Wright specimen. This appears to be a duplicate type of *Panicum leptochyrium* Doell, though the specimen is not numbered.

41. **STENOTAPHRUM** Trin. Fund. Agrost. 175. 1820.1. **Stenotaphrum secundum** (Walt.) Kuntze, Rev. Gen. Pl. 2: 794. 1891.

*Ischaemum secundum* Walt. Fl. Car. 249. 1788.

*Wright* 3490; Santiago de las Vegas, *Baker* HC 443, 794, 3649; Matanzas, *Britton & Shafer* 140; Guanabacoa, *Baker & Hasselbring* 7200; San Antonio, *Hitchcock* in 1906; Habana, *Palmer & Riley* 822; Cape Corrientes, *Millsbaugh* 1459; Cabañas, *Palmer & Riley* 759; Isle of Pines, *Palmer & Riley* 1008, *Roullee* 49; Cienfuegos, *Combs* 535 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Batabano, *Shafer* 158; Isle of Pines, *Curtiss* in 1904.

The Grisebach specimen was collected in 1860-64.

<sup>a</sup> In this genus I have followed Leeke, Zeitschr. Naturw. 79. 1907.

<sup>b</sup> In Mart. Fl. Bras. 2<sup>2</sup>: 150. 1877.

<sup>c</sup> This genus is referred to *Chamaeraphis* R. Br. by Hackel (Engl. & Prantl, Pflanzenfam.) but seems sufficiently distinct.

**42. OLYRA** L. Syst. Nat. ed. 10. **2:** 1261. 1759.**1. Olyra latifolia** L. Syst. Nat. ed. 10. **2:** 1261. 1759.

Retiro, February 27, *Wright* 746; Las Acostas, *Baker* HC 5239; Vento, *Baker* HC 584; Lomas de Candelaria, *Baker* HC 1624; Madruga, *Shafer*; Baracoa, *Pollard*, *Palmer & Palmer* 53; Cienfuegos, *Pringle* 70; El Guama, *Palmer & Riley* 115, 216; Herradura, *Baker* HC 2940, *Hitchcock* in 1906; Isle of Pines, *Palmer & Riley* 1058, 1066, *Curtiss* 293, *Taylor* 26, 27, in Gray Herbarium; Yumury Mountains, *Rugel* 186 in Gray Herbarium; Cienfuegos, *Combs* 210 in Gray Herbarium; Marianao, *Leon* 583. The following are in the herbarium of the New York Botanical Garden: Cedro, *Underwood & Earle* 1538; Yumury Mountains, *Rugel* 873; Santiago de Cuba, *Hamilton* 209; Matanzas, *Britton & Wilson* 457; Madruga, *Britton & Shafer* 315, 736; *Eggers* 4639.

There are two *Wright* specimens of this in the Grisebach Herbarium, no. 162 of 1865 and no. 746 from eastern Cuba, 1859.

**43. LITHACHNE** Beauv. Agrost. 135. *t.* 24. *f.* 11. 1812.

Blades ovate, 1 to 2 cm. wide. ....1. *L. pauciflora*.  
Blades oblong, less than 5 mm. wide. ....2. *L. pineti*.

**1. Lithachne pauciflora** (Sw.) Beauv.; Poir. Dict. Sci. Nat. **27:** 60. 1823.

*Olyra pauciflora* Sw. Prod. 21. 1788.

*Olyra axillaris* Lam. Encycl. **4:** 547. 1797.

*Lithachne axillaris* Beauv. Agrost. 166. *t.* 24. *f.* 11. 1812.

*Wright* 732; Santiago de las Vegas, *Baker* HC 4148, 5049, *Hitchcock* in 1906; San Antonio, *Hitchcock* in 1906; Cienfuegos, *Pringle* 54, *Combs* 319 in Gray Herbarium; Madruga, *Curtiss* 661; El Guama, *Palmer & Riley* 105; Herradura, *Baker* HC 2941, *Hitchcock* in 1906; Habana, *Leon* 584. In the herbarium of the New York Botanical Garden: Santiago de Cuba, *Hamilton* 210; *Eggers* 5356.

There are three specimens of this in the Grisebach Herbarium, two from eastern Cuba, 1856-57 and 1859, both numbered 732, and one from western Cuba numbered "1133=732." One sheet of *Wright* 732 in the Gray Herbarium is from "Banks of river, Santa Cruz, San José, Apr. 8."

**2. Lithachne pineti** (Wright) Chase, Proc. Biol. Soc. Wash. **21:** 182. 1908.

*Olyra pineti* Wright; Griseb. Mem. Amer. Acad. n. ser. **8:** 532. 1862.

Eastern Cuba in 1859, *Wright* 1536 in Grisebach Herbarium. There is a duplicate type in the Gray Herbarium.

**44. MNIOCHLOA** Chase, Proc. Biol. Soc. Wash. **21:** 185. 1908.

Flowering culms much exceeding sterile ones; fruit glabrous. ....1. *M. pulchella*.  
Flowering and sterile culms about equal in height; fruit pubescent. 2. *M. strephioides*.

**1. Mniochloa pulchella** (Griseb.) Chase, Proc. Biol. Soc. Wash. **21:** 186. 1908.

*Digitaria pulchella* Griseb. Cat. Pl. Cub. 231. 1866.

*Strephium?* *pulchellum* Wright, Anal. Acad. Cienc. Habana **8:** 202. 1871; Sauv. Fl. Cub. 193.

Crece al borde de precipicios en el Yunque de Baracoa *Wright* 3448.

**2. Mniochloa strephioides** (Griseb.) Chase, Proc. Biol. Soc. Wash. **21:** 186. 1908.

*Olyra strephioides* Griseb. Cat. Pl. Cub. 229. 1866.

*Wright* 3435; San Diego de los Baños, *Caldwell & Baker* 7011.

The Grisebach specimen, which is the type, is from western Cuba, 1863, numbered "942=3435."

45. **PHARUS** L. Syst. Nat. ed. 10. 2: 1269. 1759.

Culms creeping at base.....3. *P. parvifolius*.  
 Culms not creeping at base.

Fruit pubescent only at the tip, slightly exceeding the  
 glume.....2. *P. latifolius*.

Fruit pubescent all over, 2 to 3 times as long as the glume.....1. *P. glaber*.

1. **Pharus glaber** H. B. K. Nov. Gen. & Sp. 1: 196. 1816.

Dense woods, Velestina, September 27, *Wright* 733; Managuas, *Baker* HIC 455; El Guama, *Palmer & Riley* 123, 260; San Antonio, *Hitchcock* in 1906; Yumury Mountains, *Rugel* 871 in Gray Herbarium; Cienfuegos, *Combs* 363 in Gray Herbarium.

The *Wright* specimens in the Grisebach Herbarium are no. 268 of 1865, no. 733 from eastern Cuba, 1856-57, and no. 733 from eastern Cuba, 1859. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Taylor* 40, 275, 284, 479; Matanzas, *Britton & Wilson* 66, 227; Madruga, *Britton & Shafer* 789; *Eggers* 4708.

2. **Pharus latifolius** L. Syst. Nat. ed. 10. 2: 1269. 1759.

Santiago de Cuba, *Taylor* 217, *Hamilton* 211, both in Herb. N. Y. Bot. Gard.

3. **Pharus parvifolius** Nash, Bull. Torr. Club 35: 301. 1908.

Jaguey, *Eggers* 4939, *Maxon* 4155, in Herb. N. Y. Bot. Gard.

This species, which also occurs in Haiti, differs in having stems with creeping bases.

46. **LUZIOLA** Gmel. Syst. Nat. 1: 636. 1791.<sup>a</sup>1. **Luziola bahiensis** (Steud.)

*Caryochloa bahiensis* Steud. Syn. Pl. Glum. 1: 5. 1854.

*Luziola alabamensis* Chapm. Fl. So. U. S. 584. 1860.

*Luziola longivalvula* Doell in Mart. Fl. Bras. 2<sup>2</sup>: 17. 1871.

In rivulets, the panicles just above the surface of the water, pinales, Pinar del Rio, December, *Wright* 3813.

In the National Herbarium are: Duplicate type of *L. alabamensis* Chapm., collected by J. F. Beaumont, Brooklyn, Alabama, in 1859; duplicate type of *Caryochloa bahiensis* Steud., and also of *Luziola longivalvula* Doell (Bahia, *Salzmann*; Brazil, Prov. Minas Geraes, *Henschen* 1376, cited by Doell).

47. **ORYZA** L. Sp. Pl. 333. 1753.1. **Oryza sativa** L. Sp. Pl. 333. 1753.

*Wright* 3838.

In the National Herbarium is another specimen numbered 191.

48. **HOMALOCENCHRUS** Mieg. Act. Helvet. Phys.-Math. 4: 307. 1760.

Spikelets 3 mm. long.....1. *H. hexandrus*.

Spikelets 2 mm. long.....2. *H. monandrus*.

1. **Homalocenchrus hexandrus** (Sw.) Kuntze, Rev. Gen. Pl. 2: 777. 1891.

*Leersia hexandra* Sw. Prod. 21. 1788.

*Wright* 3434, 3837; Herradura, *Hitchcock* in 1906.

The Grisebach specimen is from eastern Cuba, 1860, numbered "118=3434." In Sauvalle's Flora Cubana this number is misprinted 3484. *Wright's* 3434 in the Gray Herbarium is from "San Mateo, in water 3 feet deep."

<sup>a</sup> Juss. Gen. Pl. 33. 1789, without citation of species.



**2. Homalocenchrus monandrus** (Sw.) Kuntze, Rev. Gen. Pl. **2**: 777. 1891.*Leersia monandra* Sw. Prod. 21. 1788.*Wright* 731; Yumury Mountains, *Rugel* 200 in Gray Herbarium.

There are two Wright specimens in the Grisebach Herbarium, both numbered 731, one collected in 1856-57, the other in 1859. Wright's 731 in the Gray Herbarium is labeled "In small tufts on precipitous hillsides, Loma de Rangel, July 11."

**49. Achlaena** Griseb. Cat. Pl. Cub. 228. 1866.**1. Achlaena piptostachya** Griseb. Cat. Pl. Cub. 229. 1866.

*Wright* 205; Pinar del Rio, *Baker* HC 3747; Isle of Pines, *Curtiss* 236, *Palmer & Riley* 913; *Wright* 3487 in National Herbarium.

The Grisebach specimens are no. 205 of 1865 and no. 3487 of 1860-64 (type).

**50. Reynaudia** Kunth, Rev. Gram. **1**: 195. *pl.* 9. 1829.**1. Reynaudia filiformis** (Spreng.) Kunth, Rev. Gram. 195. 1829.*Polypogon cubensis* Rich. in Sagra, Hist. Cub. **11**: 313. 1850.

*Wright* 3428; Herradura, *Baker* HC 4825, *Tracy* 9070, *Hitchcock* in 1906; Isle of Pines, *Curtiss* 371; Cienfuegos, *Combs* 579 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Sagua, *Britton & Wilson* 334; Madruga, *Britton & Shafer* 687.

There are two Wright specimens in the Grisebach Herbarium, one from eastern Cuba in 1860, no. "116=3428," and another from western Cuba in 1863, no. "937=3428." Wright's 3428 in the Gray Herbarium is from "Savannas, Chirigote, July 11."

The type of *Polypogon cubensis* is at Paris.

**51. Aristida** L. Sp. Pl. 82. 1753.

Lateral awns minute or wanting. ....5. *A. scabra*.

Lateral awns about as long as central awn.

Awns united into a twisted base about 3 mm. long; blades involute,  
usually 3 to 5 cm. long. ....3. *A. mohrii*.

Awns not united at base.

Central awn 2 to 3 cm. long; blades elongated, 60 to 90 cm.  
long. ....2. *A. erecta*.

Central awn about 1 cm. long; blades short and stiff.

Awns recurved at base at maturity; glumes about 6 mm.  
long; culm blades scattered. ....4. *A. refracta*.

Awns ascending at base; glumes 8 to 9 mm. long; culms  
rigid and rush-like, the blades often only 1 to 2 cm. long,  
commonly approximate in pairs. ....1. *A. curtifolia*.

**1. Aristida curtifolia** sp. nov.

Culms caespitose, from a perennial base, slender, stiffly erect, somewhat compressed, smooth, 20 to 30 cm. high, the alternate internodes often shortened, thus bringing the leaves together in approximate pairs; sheaths smooth, striate, short, 5 to 10 mm. long, sometimes slightly villous at throat; blades short, thick, stiffly spreading, flat, folded or involute, glabrous, 5 to 20 mm. long and 0.5 to 1 mm. wide, or the upper reduced to mere awns 2 to 3 mm. long; inflorescence a narrow nearly simple panicle, 5 to 10 cm. long, the spikelets subsessile or occasionally terminating short erect branches about 5 mm. long; glumes nearly equal, 8 to 9 mm. long, 1-nerved, smooth, except the scabrous upper part of the keel of the lower glume; lemma 5 to 6 mm. long with a minutely hairy callus 0.5 mm. long, scabrous toward apex; awns about equal, 10 to 12 mm. long, scabrous, spreading but not recurved or twisted at base.

Type, *Wright* 736, 1865, no. 559960 in the U. S. National Herbarium, which also bears the secondary numbers 282 and 286. Other specimens are: *Wright* 736 in eastern



Cuba, 1856-57 in Sauvalle Herbarium; Jata Hills at Guanabacoa, *Hitchcock* in 1906; *Baker & Hasselbring* HC 7208, 7211; *Madruga, Britton & Shafer* 658 in Herb. N. Y. Bot. Gard.

There are two Wright specimens of this in the Grisebach Herbarium, "Savannas of Guanacaro, July 28, in small tufts," no. 282 of 1865, and no. 736 from eastern Cuba, 1856-57.

This species is readily recognized by its stiff, rush-like culms and short sharp-pointed blades. On the Jata Hills it occurs on dry, grassy slopes.

## 2. *Aristida erecta* sp. nov.

Culms erect, rather stout, from a perennial root, about 1.5 meters high, glabrous; sheaths glabrous, longer than the internodes; blades glabrous beneath, scabrous on the nerves above, elongated, convolute, much attenuated at the tip, 3 to 5 mm. wide, as much as 1 meter long; panicles 50 cm. long, the numerous scabrous branches ascending below, spreading above, the lower as much as 20 cm. long, all spikelet-bearing to the base; spikelets crowded, the pedicels erect, stout, 2 to 3 mm. long, glumes glabrous, the first 12 to 15 mm. long, scabrous on the keel, abruptly cuspidate or awn-tipped, 3-nerved, one of the lateral nerves somewhat indistinct, second glume 2 to 3 mm. shorter, acuminate, 1-nerved, smooth on the keel, lemma 12 to 13 mm. long, glabrous, the callus about 1 mm. long, bearded, awns spreading, the central 2 to 3 cm. long, the lateral somewhat shorter.

The type specimen was collected by Wright in Cuba in 1865, no. 41161, in the U. S. National Herbarium. This specimen is numbered in pencil 2432, which is an error for 3432. The corresponding specimen in the Grisebach Herbarium was collected in western Cuba in 1863 and is numbered "928=3432." The only other specimen seen is: *Herradura, Tracy* 9076.

This species resembles *A. palustris* (Chapm.) Vasey, but differs in having taller culms, larger and more spreading panicles, and longer glumes and lemma. In *A. palustris* the panicle is narrow and strict, the glumes are about 10 mm. long and nearly equal, and the lemma is only 7 to 8 mm. long.

## 3. *Aristida mohrii* Nash, Rep. N. Y. Bot. Gard. 1: 436. 1900.

In roads Hanabana, January 16, *Wright* 737; *Wright* 3433 in part; *Wright* 742 in National Herbarium; Jata Hills at Guanabacoa, *Hitchcock* in 1906; La Caimanera, *Eggers* 5389.

The Grisebach specimen is from eastern Cuba in 1856-57, no. 737. Another Grisebach specimen, *Wright* "931=3433" from western Cuba, 1863, is doubtfully referred here. It appears to be the same as the fragmentary specimen no. 742, mentioned above.

## 4. *Aristida refracta* Griseb. Cat. Pl. Cub. 228. 1866.

*Aristida gyrans* Chapm. Bot. Gaz. 3: 18. 1878.

Dry savannas, Chirigote, October 26, *Wright* 3431; dry savannas, Chirigote, October 31, *Wright* 3832; in dense bunches along rivulets in sandy soil, Pinar del Rio, October, *Wright* 3834; in small dense tufts, sandy pine woods, Coloma, Pinar del Rio, October, *Wright* 3833; *Wright* 3430, 3831; Jata Hills at Guanabacoa, *Hitchcock* in 1906; *Herradura, Hitchcock* in 1906; Isle of Pines, *Palmer & Riley* 995, *Taylor* 20.

In the Grisebach Herbarium are three Wright specimens of this: Western Cuba, 1863, no. "926=3431;" eastern Cuba, 1860, no. "122=3430;" western Cuba, 1863, no. "908=3430."

## 5. *Aristida scabra* (H. B. K.) Kunth, Rev. Gram. 62. 1829.

*Streptachne scabra* H. B. K. Nov. Gen. & Sp. 1: 124. 1816.

*Streptachne cubensis* Rich.; Sagra, Hist. Cub. 11: 311. 1850.

Pebbly pinales in small bunches, Pinar del Rio, October, *Wright* 3835; Puentes Grandes, *Leon* 280; *Tricornia, Hitchcock* in 1906; *Cojimar, Hitchcock* in 1906.

The type of *Streptachne cubensis* is at Paris.

52. **MUHLENBERGIA** Schreb. Syst. Nat. ed. 13. 2: 87. 171. 17911. **Muhlenbergia capillaris** (Lam.) Trin. Gram. Unifl. 191. 1824.*Stipa capillaris* Lam. Tabl. Encycl. 1: 158. 1791.In dense tufts, Guinamar, October, *Wright* 3836.53. **SPOROBOLUS** R. Br. Prod. Fl. Nov. Holl. 169. 1810.Plants producing long rhizomes; blades conspicuously distichous .5. *S. virginicus*.

Plants caespitose not producing rhizomes; blades not distichous.

Panicle dense and spike-like. .... 3. *S. indicus*.

Panicle open.

Spikelets about 1.5 mm. long; panicle pyramidal. .... 1. *S. argutus*.

Spikelets 2.5 to 4 mm. long; panicle elongated-oblong.

Spikelets 2.5 mm. long; basal sheaths not felty. .... 4. *S. purpurascens*.

Spikelets 3.5 to 4 mm. long; basal sheaths copiously

felty-ciliate. .... 2. *S. cubensis*.1. **Sporobolus argutus** (Nees) Kunth, Enum. 1: 215. 1833.*Vilfa arguta* Nees, Agrost. Bras. 295. 1829.*Wright* 3828; Habana, *Baker* HC 1799, *Leon* 285; Batabano, *Shafer* 484, *Hitchcock* in 1906; *Triscornia*, *Hitchcock* in 1906. The following are in the herbarium of the New York Botanical Garden: Habana, *Baker* 1818; Guantanamo, *Earle* 86.The type of Nees's species is at Munich. It is not the same as *Vilfa domingensis* Trin., to which it has sometimes been referred. The Grisebach specimen of this, no. 300 of 1865, consists of two plants with two labels, "Saline grounds, in tufts, Matanzas, July 17," and, "Sand banks by the seashore, Palma Sola, Aug. 8."2. **Sporobolus cubensis** sp. nov.

Culms caespitose, glabrous, slender, erect, 40 to 60 cm. high; leaves of innovations numerous, the sheaths copiously felty-ciliate on the margins, with white, yellow, or brown hairs, which extend upward along the margins of the blade for a short distance; basal blades very long and narrow, flat, or involute, nearly as long as the culms, 1 to 2 mm. wide, smooth except for the basal hairs, strongly striate-nerved, the two or three upper blades short, 2 or 3 cm. long; panicle slender-pyramidal, glabrous throughout, 8 to 10 cm. long, branches verticillate, lowermost 5 to 8 in a whorl, slender and stiffly spreading, 1.5 to 3 cm. long; spikelets glabrous, tawny, 3.5 to 4 mm. long, appressed, on pedicels 0.5 to 1 mm. long; lower glumes rather broad, one-third to one-half the length of the spikelet, 1-nerved, the upper glume and lemma about equal, weakly 1-nerved; palea as long as or longer than the lemma; grain oval, flat, 2 mm. long.

Type specimen, Isle of Pines, *Curtiss* 392, U. S. National Herbarium no. 522010. Other specimens are: Herradura, *Hitchcock* in 1906; *Wright* 3427 in Sauvalle Herbarium.*Wright*'s 3427 in the National Herbarium consists of this species, together with *S. purpurascens*. *S. cubensis* is distinguished from *S. purpurascens* by its larger spikelets, 3.5 mm. long, the elongated blades, and the ferruginous-silky basal sheaths. Heller's 4590 from Porto Rico is *S. cubensis*. In the Grisebach Herbarium are three specimens of this from *Wright*: No. 3427a of 1860-64; no. "922=3422" from western Cuba, 1863; and no. "945=3422" from western Cuba, 1863. (No. 3422 as published in Grisebach's Catalogue, is *Eragrostis sudans*). It will be noted that nos. 3427 and 3427a are the reverse of what they are in the Sauvalle Herbarium. *Wright*'s 3427 in the Gray Herbarium is from "High pine woods, pinales, Mar. 1;" another sheet of this number is part *S. cubensis* and part *S. purpurascens*.3. **Sporobolus indicus** (L.) R. Br. Prod. Fl. Nov. Holl. 170. 1810.*Agrostis indica* L. Sp. Pl. 63. 1753.*Sporobolus jacquemontii* Kunth, Rev. Gram. 2: 427. 1831.<sup>a</sup> Gen. Pl. 44. 1789, without citation of species.

Savannas, San Cristobal, August, *Wright* 2829; *Wright* 3426; Cojimar, *Baker* HC 5197, 5334; Santiago de las Vegas, *Baker* HC 537, 5111, *Hitchcock* in 1906; Tricornia, *Tracy* 9081; Guanabacoa, *Leon* 186; Puentes Grandes, *Leon* 275, 282; Habana, *Baker* HC 1279; Madruga, *Shafer* 67; Matanzas, *Britton & Wilson* 473; Batabano, *Shafer* 486; Herradura, *Tracy* 9064, 9066, *Hitchcock* in 1906; Consolacion del Sur, *Palmer & Riley* 473; San Diego de los Baños, *Palmer & Riley* 627; Coloma, *Palmer & Riley* 349; El Guama, *Palmer & Riley* 404; Isle of Pines, *Palmer & Riley* 1121, *Taylor* 48, *Curtiss* 323; Arroyo Apolo, *Leon* 586; Cienfuegos, *Combs* 261 and 263 in Gray Herbarium. The following are in the herbarium of the New York Botanical Garden: Santiago de Cuba, *Taylor* 91; Isle of Pines, *Curtiss* in 1904; Madruga, *Britton & Shafer* 721; *Eggers* 5361.

The three *Wright* specimens in the Grisebach Herbarium are: Eastern Cuba, 1860, no. "119=3426;" no. 299 of 1865; and eastern Cuba, 1859, no. 1537. In Sauvalle's *Flora Cubana* the number appears as 3829 instead of 2829. The specimen in the Gray Herbarium is numbered 3829.

4. ***Sporobolus purpurascens*** (Sw.) Hamilt. Prod. Fl. Ind. Occ. 5. 1825.

*Agrostis purpurascens* Sw. Prod. 25. 1788.

*Vilfa grisebachiana* Fourn. Mex. Pl. 2: 98. 1886.

Sandy pine woods in large tufts, Pinar del Rio, October, *Wright* 3427a.

The two *Wright* specimens in the Grisebach Herbarium are: no. "907=3427" from western Cuba, 1863, and no. "885=3427", 1863. The type of Swartz's species is at Stockholm; the spikelets are 2.5 mm. long. Fournier noticed the difference between the two species (*S. cubensis* and *S. purpurascens*) distributed by *Wright* under 3427, but described as new the one already named. *Wright* 3427a in the Gray Herbarium is from "savannas, Chirigote, July 11."

5. ***Sporobolus virginicus*** (L.) Kunth, Rev. Gram. 1: 67. 1829.

*Agrostis virginica* L. Sp. Pl. 63. 1753.

*Wright* 291; *Wright* 2830 in National Herbarium; Habana, *Baker* HC 1810, *Leon* 284; Mariel, *Palmer & Riley* 736; Isle of Pines, *Palmer & Riley* 955, 1122; Matanzas, *Britton & Wilson* 151 in Herb. N. Y. Bot. Gard.

The Grisebach specimen is no. 291 in 1865, "Seashore, Matanzas, July 8." In Sauvalle's *Flora Cubana* this is numbered 3830, which is probably correct, as the specimen in the Gray Herbarium is also numbered 3830.

54. **CAPRIOLA** Adans. Fam. Pl. 2: 31, 532. 1763.<sup>a</sup>

1. ***Capriola dactylon*** (L.) Kuntze, Rev. Gen. Pl. 2: 764. 1871.

*Panicum dactylon* L. Sp. Pl. 58. 1753.

*Cynodon dactylon* Pers. Syn. 1: 85. 1805.

*Wright* 3814; Santiago de las Vegas, *Baker* HC 386, *Hitchcock* in 1906; Habana, *Leon* 290; Cienfuegos, *Combs* 540 in Gray Herbarium.

55. **CHLORIS** Sw. Prod. 25. 1788.

Spikelets awnless; spikes dark brown.....6. *C. petraea*.

Spikelets awned; spikes green or yellow.

Spikelets distant, diverging; spikes delicate, scarcely 1-sided.2. *C. cruciata*.

Spikelets contiguous; spikes not delicate, conspicuously

1-sided.

<sup>a</sup> There is some question as to the standing of *Capriola* as a genus, since it is based upon "*Gramen dactylon offic.*" (Adans. Fam. 2: 31 and 532. 1763.) But since Linnæus cites under *Panicum dactylon* "*Gramen dactylon, radice repente, S. officinarum Scheuch. Gram. 104*" we may assume that Adanson wished to base his genus on this species, though he does not quote a definite author.

Upper floret truncate-dilated.

- Awns 1 to 2 mm. long; lower lemma long-ciliate on the keel and lateral veins, but not at apex.....1. *C. ciliata*.  
 Awns, or some of them, 5 mm. long or more; lower lemma ciliate on the upper part of marginal nerves, not on keel.....5. *C. paraguayensis*.

Upper floret narrowed toward apex.

- Lower lemma strongly ciliate at apex with tuft of hairs 2 mm. long.....3. *C. elegans*.  
 Lower lemma only pubescent at apex.  
 Lower lemma 3 mm. long; blades short and flat, abruptly rounded at apex.....7. *C. radiata*.  
 Lower lemma 2 mm. long; blades mostly involute-pointed.....4. *C. eleusinoides*.

1. ***Chloris ciliata*** Sw. Prod. 25. 1788.

Trinidad, May 17, *Wright* 743; Vento, *Baker* HC 1184, *Curtiss* 600; Guanabacoa, *Leon* 185 in part; Santiago de las Vegas, *Tracy* 9115, *Hitchcock* in 1906; Triscornia 9085; Habana, *Tracy* 9106; Herradura, *Hitchcock* in 1906; Arroyo Apolo. *Leon* 574.

2. ***Chloris cruciata*** (L.) Sw. Prod. 25. 1788.

*Agrostis cruciata* L. Syst. Nat. ed. 10. 2: 873. 1759.

*Chloris brevigluma* Wright, Anal. Acad. Cienc. Habana 8: 200. 1871; Sauv. Fl. Cub. 191.

Bushy savannas, Hanabana, May 16, *Wright* 1549; Punta Brava, *Baker* HC 4067; Guanabacoa, *Baker* HC 2927, *Curtiss* 584, *Hitchcock* in 1906; Madruga, *Britton & Shafer* 604 in Herb. N. Y. Bot. Gard.

There are three Wright specimens of this species in the Grisebach Herbarium: Nos. "917=1548" and "932=1548" from western Cuba, 1863, and no. 1549 from eastern Cuba, 1859. The type of *C. brevigluma* is in the Gray Herbarium with printed label for 1860-64, no. 1548. In Sauvalle's Flora Cubana the type is misprinted "1848 p. p." Wright seems to have distinguished his species from *C. eleusinoides* mounted on the same sheet (*Wright* 1549), which he regarded as the true *C. cruciata*. Wright's type matches his no. 1549 in the National Herbarium.

3. ***Chloris elegans*** H. B. K. Nov. Gen. & Sp. 1: 166. 1816.

Vento, *Shafer* 483, *Baker* HC 1183; Madruga, *Britton & Shafer* 725; Mazarra, *Baker* HC 4023.

The type of this has not been examined, but the specimens cited above agree well with the plate accompanying the original description.<sup>a</sup>

4. ***Chloris eleusinoides*** Griseb. Fl. Brit. W. Ind. 539. 1864.

*Chloris eleusinoides vestita* Greenman in Combs, Trans. Acad. St. Louis 7: 477. 1897.

Sandy pine woods, La Griza, January, *Wright* 3819; *Wright* 3818; *Wright* 1548; *Baker* HC 4067; La Magdalena, *Baker* Pl. Trop. Am. 4; Havana, *Leon* 287; Herradura, *Hitchcock* in 1906; Cienfuegos, *Combs* 631 in Gray Herbarium.

The Grisebach specimen is from eastern Cuba, 1859, no. 1548. Nos. 1548 and 1549, in the Engelmann Herbarium, both from eastern Cuba, 1860, are *Chloris eleusinoides*. No. 1549 in the Gray Herbarium is also this species (Monte Verde, eastern Cuba in 1859).

Combs's 631, from Cienfuegos, in the Gray Herbarium is the type of *C. eleusinoides* variety *vestita*. It differs from Grisebach's type in being somewhat more pubescent.

<sup>a</sup>Op. cit. pl. 49.

5. *Chloris paraguayensis* Steud. Syn. Pl. Glum. 1: 204. 1854.

*Andropogon barbatus* L. Mant. 2: 302. 1771, not L. 1759.

*Chloris barbata* Sw. Fl. Ind. Occ. 1: 200. 1797 (based on *Andropogon barbatus* L. Mant.), not *C. barbata* Nash, Bull. Torr. Club 25: 443. 1898 (based on *Andropogon barbatus* L. Syst.).

Habana, *Baker* HC 3388, *Tracy* 9113, *Palmer & Riley* 1150; *Tricornia*, *Tracy* 9084, *Hitchcock* in 1906, *Baker* HC 1864; Matanzas, *Britton* 491; Regla, *Shafer*; Vedado, *Baker* HC 1441; Playa de Cojimar, *Hitchcock* in 1906; Santiago de Cuba, *Mills* 1064; Mariel, *Palmer & Riley* 725; Herradura, *Hitchcock* in 1906. In the herbarium of the New York Botanical Garden: Isle of Pines, *Curtiss* in 1904; Santiago de Cuba, *Underwood & Earle* 101.

6. *Chloris petraea* Sw. Prod. 25. 1788.

*Eustachys petraea* (Sw.) Desv. Nuov. Bull. Soc. Philom. 2: 189. 1810.

*Wright* 293; *Wright* 3817 in National Herbarium; Cojimar, *Baker* HC 2867, *Hitchcock* in 1906; Habana, *Liebmann* 235; Isle of Pines, *Palmer & Riley* 969. In the herbarium of the New York Botanical Garden: Matanzas, *Britton & Shafer* 16; Isle of Pines, *Curtiss* in 1904.

The specimen in the Grisebach Herbarium is numbered 293, 1865. The number 3719, listed in Sauvalle's Flora Cubana under this species, is probably an error. Doell changes the name of *C. petraea* Sw. to *C. swartziana*<sup>a</sup> because of the different *C. petraea* Thunb.<sup>b</sup>

7. *Chloris radiata* (L.) Sw. Prod. 26. 1788.

*Agrostis radiata* L. Syst. Nat. ed. 10. 2: 873. 1759.

Eastern Cuba, 1856-57, *Wright* 742; Santiago de las Vegas, *Tracy* 9110, *Hitchcock* in 1906; Playa de Cojimar, *Hitchcock* in 1906; *Tricornia*, *Hitchcock* in 1906; Habana, *Leon* 558.

56. *BOUTELOUA* Lag. Var. Cienc. 2<sup>a</sup>: 134. 1805.<sup>c</sup>

Primary racemes few, distant on the main axis (5 to 15 mm. apart);

blades 1 to 2 mm. wide.....1. *B. americana*.

Primary racemes numerous, secund, approximate (1 to 5 mm. apart);

blades 3 to 5 mm. wide.....2. *B. disticha*.

1. *Bouteloua americana* (L.) Scribn. Proc. Acad. Phila. 1891: 306. 1891.

*Aristida americana* L. Syst. Nat. ed. 10. 2: 879. 1759.

*Bouteloua litigiosa* Lag. Gen. & Sp. Nov. 5. 1816.

*Bouteloua humboldtiana* Griseb. Mem. Amer. Acad. n. ser. 8: 532. 1862.

*Bouteloua porphyrantha* Wright, Anal. Acad. Cienc. Habana 8: 201. 1871; Sauv. Fl. Cub. 192.

*Wright* 165, 166, 3816; *Wright* 3815 and 734 in Gray Herbarium; *Tricornia*, *Baker* HC 1873, *Tracy* 9088, *Hitchcock* in 1906; Habana, *Curtiss* 546, *Leon* 293; Colima, *Baker* HC 1978; La Magdalena, *Baker* HC 3621, Regla, *Shafer* 489; Guanabacoa, *Leon* 38; Marianao, *Leon* 231; Cojimar, *Hitchcock* in 1906.

The Grisebach specimens are *Wright* 161 of 1865, "Bushy savannas, Hanabana, June 1," and 739, from eastern Cuba, 1859. The specimens cited above agree with the Linnaean type, which is not *Aristida dispersa* Trin. as stated by Munro.<sup>d</sup>

2. *Bouteloua disticha* (H. B. K.) Benth. Journ. Linn. Soc. 19: 105. 1882.

*Polydon distichus* H. B. K. Nov. Gen. & Sp. 1: 175. 1816.

Madrugá, *Curtiss* 537; Habana, *Leon* 299.

<sup>a</sup> In Mart. Fl. Bras 2<sup>a</sup>: 68. 1878.

<sup>b</sup> Prod. 20. 1794.

<sup>c</sup> *Botelua* in the original.

<sup>d</sup> Proc. Linn. Soc. Bot. 6: 49. 1862.

57. **ELEUSINE** Gaertn. Fruct. & Sem. 1: 7. *pl.* 1. 1788.1. **Eleusine indica** (L.) Gaertn. Fruct. & Sem. 1: 8. 1788.

*Cynosurus indicus* L. Sp. Pl. 72. 1753.

Saline flats, Matanzas, July 4, *Wright* 744; Santiago de las Vegas, *Baker* HC 513, 1139, *Hitchcock* in 1906; Puentes Grandes, *Leon* 278; Habana, *Leon* 294; Guanajay, *Palmer & Riley* 817; Santiago de Cuba, *Millspaugh* 1111; Cienfuegos, *Combs* 260 in Gray Herbarium; Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard.

The Grisebach specimen is no. 277 of 1865. The Sauvalle specimen also bears the secondary number 277.

58. **DACTYLOCTENIUM** Willd. Enum. 1029. 1809.1. **Dactyloctenium aegyptium** (L.) Richt. Pl. Eur. 1: 68. 1870.

*Cynosurus aegyptius* L. Sp. Pl. 72. 1753.

Pine woods, Nueva Filipina, *Wright* 3821 (misprinted 3831 in Sauvalle's Flora Cubana); Habana, *Leon* 289, 554, *Baker* HC 1795, *Curtiss* 636; Puentes Grandes, *Leon* 273; Triscornia, *Hitchcock* in 1906; Cojimar, *Hitchcock* in 1906; Batabano, *Baker* HC 3919; Cienfuegos, *Combs* 513 in Gray Herbarium.

59. **LEPTOCHLOA** Beauv. Agrost. 71. *pl.* 15. *f.* 1. 1812.

Spikelets 2 to 4-flowered, imbricated, on one side of the panicle branches.

Upper glume as long as lower lemma; sheaths papillose-hispid . . . 2. *L. mucronata*.

Upper glume shorter than lower lemma; sheaths smooth . . . 4. *L. virgata*.

Spikelets several-flowered; inflorescence not conspicuously 1-sided.

Inflorescence a single spike . . . 3. *L. spicata*.

Inflorescence of several spike-like racemes . . . 1. *L. fascicularis*.

1. **Leptochloa fascicularis** (Lam.) Gray, Man. 588. 1848.

*Festuca fascicularis* Lam. Tabl. Encycl. 1: 189. 1791.

In tufts, ditches, Matanzas, July 6, *Wright* 303; *Wright* 3822; *Wright* 3812 in National Herbarium; Batabano, *Baker* HC 2762, *Hitchcock* in 1906. In the herbarium of the New York Botanical Garden: Matanzas, *Britton & Wilson* 176; Batabano, *Shafer* 488.

The Grisebach specimen collected in 1865 is numbered 303.

2. **Leptochloa mucronata** (Michx.) Kunth, Rev. Gram. 1: 91. 1829.

*Eleusine mucronata* Michx. Fl. Bor. Amer. 1: 65. 1803.

In fields, Punta de Palma, September, *Wright* 740; Habana, *Britton & Wilson* 509, *Hitchcock* in 1906; Isle of Pines, *Curtiss* 508; Guanabacoa, *Leon* 580.

In the National Herbarium are two *Wright* specimens of this, numbered 740 and 741. The latter number is probably an error, the label having been interchanged with that of a specimen of *L. fascicularis*. In the Gray Herbarium there are two sheets numbered 741, of which one is *L. filiformis* from "Cultivated ground, Valetina, Nov. 12," 1865, the other *L. virgata*.

The type of *Festuca filiformis* Lam.<sup>a</sup> "ex Amer. merid. Comm. D. Richard" upon which *Leptochloa filiformis* Beauv. is presumably based, has not been examined, and the description is insufficient for identification. This name may be found to apply to this species.

3. **Leptochloa spicata** (Nees) Scribn. Proc. Acad. Phila. 1891: 304. 1891.

*Bromus spicatus* Nees, Agrost. Bras. 471. 1829.

*Triscuspis simplex* Griseb. Mem. Amer. Acad. n. ser. 8: 532. 1862.

*Wright* 1551.

There are two *Wright* specimens in the Grisebach Herbarium, both from eastern Cuba, no. 114 of 1860 and no. 1551 of 1859. *Wright's* 1551 is represented in the Gray

<sup>a</sup> Tabl. Encycl. 1: 191. 1791.



Herbarium by two specimens, one of 1860-64, labeled "Savannas, Hoto del Medio, Aug. 25," the other, Monte Verde, 1859, labeled "On rocks exposed to the sun, covered with a thin stratum of earth, on the brink of the Farallones, Oct. 11."

4. *Leptochloa virgata* (L.) Beauv. Agrost. 166. 1812.

*Cynosurus virgatus* L. Syst. Nat. ed. 10. 2: 876. 1759.

*Leptochloa perennis* Hack. Inf. Anal. Est. Agr. Cuba 1: 411. 1906.

Wright 283, 741, 3436; Habana, Tracy 9108, Curtiss 607; La Magdalena, Baker HC 3635; Matanzas, Britton 543; Santiago de las Vegas, Hitchcock in 1906; Herradura, Baker HC 765, 2786, Tracy 9061, Hitchcock in 1906; Cayamas, Baker HC 4617; Cienfuegos, Pringle 62, Combs 256 in Gray Herbarium; San Diego de los Baños, Palmer & Riley 543; Santiago de Cuba, Pollard, Palmer & Palmer 273; Marianao, Leon 560; Yumury Mountains, Rugel 193 in Gray Herbarium. In the herbarium of the New York Botanical Garden are: Santiago de Cuba, Palmer 273; Baracoa, Underwood & Earle 1397; Madruga, Britton & Shafer 746.

Wright's 741 in the Sauvalle Herbarium has also the secondary number 278. In the Grisebach Herbarium are three specimens of this: "In roads, probably introduced, La Ferruina, June 24," no. 278 of 1865; no. 3436 of 1860-64; no. "117=740" from eastern Cuba, 1860. One of the Wright specimens bearing the number 741 in the Gray Herbarium (eastern Cuba, 1856-57) is *L. virgata*; the other is *L. mucronata*. Wright's 3436 in the Gray Herbarium is from Mayarí Abajo, Aug. 2. Another specimen in the Gray Herbarium without number is from "Savannas, Retiro, Oct. 11."

60. *OPIZIA* Presl, Rel. Haenk. 1: 293. t. 41. f. 1. 1830.

1. *Opizia stolonifera* Presl, Rel. Haenk. 1: 293. 1830.

Cojimar, Baker HC 2898, 5076, Hitchcock in 1906; Pinar del Rio, Shafer 482; Habana, Curtiss 571, Leon 274, 288.

61. *PAPPOPHORUM* Schreb.; Vahl, Symb. Bot. 3: 10. 1794.<sup>a</sup>

1. *Pappophorum laguroides* Schrad. in Schult. Mant. 2: 342. 1824.

*Triscornia*, Hitchcock in 1906.

62. *GYNERIUM* H. B. K. Pl. Aequin. 2: 112. t. 115. 1809.

1. *Gynerium sagittatum* (Aubl.) Beauv. Agrost. 138. 1812.

*Saccharum sagittatum* Aubl. Pl. Guian. 1: 50. 1775.

*Gynerium saccharoides* H. B. K. Pl. Aequin. 2: 112. 1809.

Retiro, Wright 224; Wright 3477; Santiago de las Vegas, Baker HC 1297, 5017, Wilson 237; San Diego de los Baños, Palmer & Riley 616. In the herbarium of the New York Botanical Garden are the following: Matanzas, Britton & Shafer 265, Britton & Wilson 205; Santiago de Cuba, Taylor 145; Calvario, Leon 569.

In the Grisebach Herbarium are Wright 3477, 1860-64, and 1560 of 1859. Wright's 1560 in the Gray Herbarium is from Monte Verde; no. 3477 is labeled "10-15 ft. panicle 4-6 ft. On stony ledges in the river Tacotaco, Sept. 13."

63. *ERAGROSTIS* Host, Icon. Gram. Austr. 4: 14. pl. 14. f. 11. 1809.<sup>b</sup>

Flowers diœcious; creeping annuals ..... 7. *E. hypnoides*.  
Flowers perfect, stems not creeping.

Palea prominently ciliate; annuals.

Panicle contracted, spike-like ..... 2. *E. ciliaris*.

Panicle open ..... 8. *E. plumosa*.

<sup>a</sup> Schreb. Gen. 2: 787. 1791, without citation of species.

<sup>b</sup> Until the genus *Eragrostis* is monographed the Cuban species must remain somewhat uncertain.



Palea not prominently ciliate.

Annual; blades flat; panicle open but not very diffuse ..9. *E. tephrosanthes*.  
Perennial.

Plants low, 10 to 20 cm. high; blades involute, panicle not diffuse.

Spikelets 3 to 5-flowered; pedicels glutinous;  
palea somewhat ciliate .....6. *E. glutinosa*.

Spikelets many-flowered; pedicels not glutinous;  
palea only minutely ciliate.....3. *E. cubensis*.

Plants tall; blades flat; panicles very diffuse.

Spikelets less than 2 mm. long, 1 or 2-flowered..1. *E. airoides*.

Spikelets 5 to 10 mm. long, several-flowered.

Spikelets lanceolate; pedicels shorter than  
spikelets; panicle branches lax; culms 1  
meter or more tall.....5. *E. excelsa*.

Spikelets linear; pedicels mostly longer than  
spikelets; panicle branches stiffly spread-  
ing; culms rarely over 60 cm. tall.....4. *E. elliottii*.

1. **Eragrostis airoides** Nees, Agrost. Bras. 509. 1829.

In savannas, Chirigote, November 2, *Wright* 3827.

2. **Eragrostis ciliaris** (L.) Link, Hort. Berol. 1: 192. 1827.

*Poa ciliaris* L. Syst. Nat. ed. 10. 2: 875. 1759.

*Wright* 155; *Wright* 1550; Cojimar, *Hitchcock* in 1906; Batabano, *Baker* HC 3912; Guines, *Baker* HC 3561; Robles, *Shafer* 40; Guanabacoa, *Leon* 196; Puentes Grandes, *Leon* 281; Herradura, *Baker* HC 2778; Matanzas, *Palmer & Riley* 13; El Guama, *Palmer & Riley* 185; Santiago de Cuba, *Millsbaugh* 1062; Cienfuegos, *Combs* 480 in Gray Herbarium. In the herbarium of the New York Botanical Garden are the following: Isle of Pines, *Curtiss* in 1904; Matanzas, *Britton & Shafer* 555; Santiago de Cuba, *Underwood & Earle* 172.

The *Wright* specimen in the National Herbarium bears the secondary number 305. In the Grisebach Herbarium are two *Wright* specimens of this, no. 305 of 1865 and no. 1550 from eastern Cuba, 1859. In the Gray Herbarium are two specimens of *Wright* 1550, one of 1860-64, the other from Josephina, near Monte Verde, 1859.

3. **Eragrostis cubensis** sp. nov.

Culms caespitose from a perennial base, numerous, slender and wiry, smooth, erect or spreading, 10 to 20 cm. long, or occasionally decumbent and as much as 30 cm. long; sheaths smooth, striate; blades filiform-convolute, glabrous, or very sparsely pilose, the base and mouth of sheath pilose, 2 to 3 cm. long, or those on the innovations as much as 10 cm. long; panicles nearly simple, 2 to 4 cm. long, the branches 1 to 2 mm. long, bearing a single spikelet, or the lowermost as much as 1 cm. long, bearing 2 to 4 spikelets; spikelets linear, 5 to 15 mm. long, 1 mm. wide, as much as 40-flowered; glumes smooth, nearly equal, about 1 mm. long; lemma acute, 3-nerved, glabrous, keel smooth; palea minutely ciliate.

Isle of Pines, *Curtiss* 420 (type U. S. National Herbarium no. 522037); *Wright* 3424, 3825; Vedado, *Baker* HC 3456; Madruga, *Shafer* 68; La Magdalena, *Baker* Pl. Trop. Amer. 3; Herradura, *Tracy* 9097, *Baker* HC 2938, 4876, 4877, *Hitchcock* in 1906; Sagua, *Britton & Wilson* 382 in Herb. N. Y. Bot. Gard.

This has been confused with *E. bahiensis* Steud., which is a larger plant, 60 cm. or more tall. *E. berteroi*ana (Schult.) Kunth, of Santo Domingo, has smaller spikelets with lemmas scabrous on the keel, as shown by a specimen from Kunth in Trininius's herbarium. The Grisebach specimen from *Wright* is numbered "938=3424," and is from western Cuba, 1863, "bushy swamps, Hanabana, May 16." Another

is from western Cuba, 1863, and is numbered 903. Wright's 3424 in the Gray Herbarium is from "savannas, Chirigote, July 13."

This is described and figured by Sloane,<sup>a</sup> and is cited as a synonym by Swartz under *Poa glutinosa* <sup>b</sup> and by Grisebach;<sup>c</sup> but *Poa glutinosa* Sw. is *Eragrostis sudans* Griseb., while Wullschlaegel's specimen from Jamaica, cited by Grisebach under *Eragrostis glutinosa*, is *E. elliottii* S. Wats.

4. ***Eragrostis elliottii*** S. Wats. Proc. Amer. Acad. **25**: 140. 1890.

*Poa nitida* Ell. Bot. S. C. & Ga. **1**: 162. 1816, not *Poa nitida* Lam. 1791, nor *Eragrostis nitida* Link, 1827.

*Eragrostis macropoda* Pilger in Urban, Symb. Antill. **4**: 106. 1903.

Savannas, Retiro, June, Wright 3423; without data, Wright; Cojimar, Baker HC 5332; Pinar del Rio, Baker & Abarca HC 3735, Palmer & Riley 441; Herradura, Tracy 9096, Hitchcock in 1906; Isle of Pines, Taylor 25. In the herbarium of the New York Botanical Garden are: Sagua, Britton & Wilson 320; Isle of Pines, Curtiss in 1904.

The Grisebach specimens are nos. 155, 155a, 155b, all of 1865. Wright's 3423 in the Gray Herbarium is from "lagunas, Vueltabajo, July 24."

Pilger<sup>d</sup> states that *E. macropoda* differs from *E. nitida* (Ell.) Chapm. in having long-peduncled spikelets. However, the type of *Poa nitida* Ell. has long-peduncled spikelets and is well matched by Wright 3423.

5. ***Eragrostis excelsa*** Griseb. Cat. Pl. Cub. 227. 1866.

Wright 3425.

The Grisebach specimen is no. 3425, 1860-64. Wright's 3425 in the Gray Herbarium is from "sand beaches by the seaside, Toscano, Oct. 30."

6. ***Eragrostis glutinosa*** (Sw.) Trin. Mem. Acad. Petersb. VI. **1**: 397. 1831.

*Poa glutinosa* Sw. Prod. 26. 1788.

*Eragrostis sudans* Griseb. Cat. Pl. Cub. 227. 1866.

Wright 3422.

The Grisebach specimen is from eastern Cuba, 1860, numbered "112=3422." The Sloane<sup>e</sup> figure cited by Swartz is *Eragrostis cubensis* Hitchc.

The type of Swartz's species in the Stockholm Herbarium is from Jamaica. In the Trinius Herbarium is a duplicate from Swartz, which is the basis of *Eragrostis glutinosa* Trin.

7. ***Eragrostis hypnoides*** (Lam.) B. S. P. Prel. Cat. N. Y. 69. 1888.

*Poa hypnoides* Lam. Tabl. Encycl. **1**: 185. 1791.

*Poa reptans* Michx. Fl. Bor. Amer. **1**: 69. 1803.

*Eragrostis reptans* Nees, Agrost. Bras. 514. 1829.

Around lagunas, Hanabana, May 20, Wright 156; Wright 3826; Laguna de Castellano, Baker HC 1356; Isle of Pines, Curtiss 391. The following are in the herbarium of the New York Botanical Garden: Habana, Baker 4328; Santiago de Cuba, Hamilton 214; Baracoa, Underwood & Earle 1387.

The Grisebach specimen from Wright is no. 156 of 1865.

<sup>a</sup> Hist. Jam. **1**: pl. 71. f. 2. 1707.

<sup>b</sup> Sw. Prod. 26. 1788.

<sup>c</sup> Fl. Brit. W. Ind. 532. 1864.

<sup>d</sup> Loc. cit.

<sup>e</sup> Hist. Jam. **1**: pl. 71. f. 2. 1707.

8. *Eragrostis plumosa* (Retz.) Link, Hort. Berol. 1: 192. 1827.<sup>a</sup>

*Poa plumosa* Retz. Obs. 4: 20. 1786.

Santiago de las Vegas, *Baker* HC 1030; Habana, *Hitchcock* in 1906; Puentes Grandes, *Leon* 277; Santiago de Cuba, *Palmer* 374, *Underwood & Earle* 173 in Herb. N. Y. Bot. Gard.

9. *Eragrostis tephrosanthes* Schult. Mant. 2: 316. 1824.

*Wright* 745; Santiago de las Vegas, *Baker* HC 3666; Vento, *Wilson* 1182; Carduas, *Britton & Wilson* 156a; Guanabacoa, *Leon* 205; Puentes Grandes, *Leon* 276; Habana, *Leon* 295, *Hitchcock* in 1906; Cojimar, *Hitchcock* in 1906; Herradura; *Tracy* 9057. *Hitchcock* in 1906; Cienfuegos, *Combs* 266 in Gray Herbarium; Matanzas, *Britton & Shafer* 557 in Herb. N. Y. Bot. Gard.

The Grisebach specimen is from Wright, 1860-64, without number. In the Gray Herbarium is a Wright specimen without number, with an 1860-64 label, and two specimens numbered 745 from eastern Cuba, one collected in 1856-57, the other in 1859.

This species is similar to *E. pilosa* (L.) Beauv., but the spikelets are larger and broader.

64. *UNIOLA* L. Sp. Pl. 71. 1753.

Spikelets 15 mm. or more long, 7 to 10 mm. wide ..... 1. *U. paniculata*.

Spikelets 2 to 3 mm. long, 1 to 2 mm. wide ..... 2. *U. virgata*.

1. *Uniola paniculata* L. Sp. Pl. 71. 1753.

*Wright* 2823 [error for 3823].

The Grisebach specimen is labeled "Sandy sea-beach, Cananova, July 15," no. 280, 1865. In Sauvalle's Flora Cubana this is numbered 3823, which is apparently correct. The specimen in the Gray Herbarium is numbered 3823.

2. *Uniola virgata* (Poir.) Griseb. Fl. Brit. W. Ind. 531. 1864.

*Poa virgata* Poir. in Lam. Encycl. 5: 78. 1804.

Punta Brava, *Rugel* 870 in Grisebach Herbarium; also in the Gray Herbarium and that of the New York Botanical Garden.

65. *DISTICHLIS* Raf. Journ. Phys. 89: 104. 1819.1. *Distichlis spicata* (L.) Greene, Bull. Calif. Acad. Sci. 2: 415. 1887.

*Uniola spicata* L. Sp. Pl. 71. 1753.

Vedado, *Baker* HC 3455; Batabano, *Shafer* 117, *Hitchcock* in 1906.

66. *ARTHROSTYLIDIUM* Rupr. Mem. Acad. Petersb. VI. 5: 117. 1839.

Blades capillary ..... 2. *A. capillifolium*.  
Blades flat.

Blades less than 5 cm. long.

Sheaths puberulent, bristles at summit inconspicuous ..... 6. *A. sarmentosum*.

Sheaths glabrous, bristles at summit elongated.

Blades about 5 mm. wide; spikelets reflexed ..... 4. *A. distichum*.

Blades about 2 mm. wide; spikelets appressed ..... 5. *A. fimbriatum*.

Blades 10 cm. or more long.

Blades puberulent beneath, often reflexed ..... 7. *A. urbanii*.

Blades glabrous beneath, erect.

Blades 5 to 10 mm. wide ..... 3. *A. cubense*.

Blades about 2 mm. wide, elongated ..... 1. *A. angustifolium*.

<sup>a</sup> Trimen (Fl. Ceylon 5: 291. 1900) considers this different from *E. tenella* (L.) Roem. & Schult. (*Poa tenella* L., *Poa amabilis* L.) and includes it as *E. tenella plumosa* (Retz.) Stapf; Fl. Brit. Ind. 7: 315. 1896.

1. *Arthrostylidium angustifolium* Nash, *Torreyia* **3**: 172. 1903.  
Baracoa, *Underwood & Earle* 941 in Herb. N. Y. Bot. Gard.
2. *Arthrostylidium capillifolium* Griseb. Mem. Amer. Acad. n. ser. **8**: 531. 1862.  
Without data, *Wright*; *Madruga*, *Shafer* 11; Santiago de Cuba, *Taylor* 218, *Hamilton* 212, both in Herb. N. Y. Bot. Gard.

The Wright specimen in the Grisebach Herbarium is no. 738 from eastern Cuba in 1856-57. Since the above specimen is the only *Arthrostylidium* in the Sauvalle Herbarium without number, it is probably the one listed under no. 2744 in Sauvalle's *Flora Cubana*, "*Arthrostylidium* sp.? (sine numero)."

In the Gray Herbarium are two specimens of *Wright* 738, both from eastern Cuba, one with flowers, collected in 1856-57, the other sterile, "In dense woods, ascending on trees and bushes, 10-20 ft., Monte Verde, Aug. 22, 1859."

3. *Arthrostylidium cubense* Rupr. Mem. Acad. Petersb. VI. **5**: 118. 1839.  
"Pendant on cliffs, pinales, Nov.," "Banks of river San Sebastian, Pinar del Rio, Dec.," *Wright* 3811; without locality, *Wright* 3809.  
The two Grisebach specimens are labeled "Subscandent, 10 ft., savannas of Guanacaro, near rivulets, Aug. 3," no. 307, 1865, and "Savannas of Guanacaro, July 31," no. 288. The Wright specimens agree with the type in the Trinius Herbarium.

4. *Arthrostylidium distichum* Pilger in Urban, Symb. Antill. **2**: 342. 1901.  
"In dense woods, Oct. 19," "Damp woods, Rangel, Nov. 14," *Wright* 3808.
5. *Arthrostylidium fimbriatum* Griseb. Mem. Amer. Acad. n. ser. **8**: 531. 1862.  
Eastern Cuba in 1859, *Wright* 1554 in Grisebach Herbarium. This number in the Gray Herbarium is labeled, "In dense woods, 1-3 ft. high, Dec. 23," from Monte Verde, 1859. A sterile specimen in the herbarium of the New York Botanical Garden from Santiago de Cuba, *Taylor* 415, appears to be this species.

6. *Arthrostylidium sarmentosum* Pilger in Urban, Symb. Antill. **4**: 108. 1903.  
Santiago de Cuba, *Hamilton* 213 in Herb. N. Y. Bot. Gard.
7. *Arthrostylidium urbanii* Pilger in Urban, Symb. Antill. **2**: 339. 1901.  
*Wright* 3810.

In the Gray Herbarium there are two sterile specimens of what appear to be this species, numbered 41 and 288.

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*Gramen* sp., *Wright* 3894. This number is represented by an unidentifiable fragmentary specimen from which the spikelets have fallen. It is listed in Sauvalle's *Flora Cubana* as "*Muhlenbergia spicata* Mumm."

### GRASSES OF GRISEBACH'S CATALOGUE.<sup>a</sup>

1. *Arthrostylidium fimbriatum* Gr. Wr. 1554. See p. 246.
2. *Arthrostylidium cubense* Rupr. Wr. a. 1865 (307).<sup>b</sup> See p. 246.
3. *Arthrostylidium capillifolium* Gr. Wr. 738. See p. 246.
4. *Arundo saccharoides* Gr. Wr. 1560, 3477. See *Gynerium sagittatum*, p. 242.
5. *Uniola virgata* Gr. Rug. 870. See p. 245.
6. *Uniola paniculata* L. Wr. a. 1865 (280). See p. 245.
7. *Eragrostis excelsa* Gr. Wr. 3425. See p. 244.
8. *Eragrostis prolifera* Steud. Wr. a. 1865 (155a). See *E. elliottii*, p. 244.
9. *Eragrostis pilifera* Benth. Wr. a. 1865 (156b). See *E. elliottii*, p. 244.

<sup>a</sup> *Catalogus Plantarum Cubensium*, 1866.

<sup>b</sup> The numbers in parentheses refer to the secondary numbers on the labels in Grisebach's herbarium. The other numbers and the names are as given by Grisebach. The "a" stands for anno.

10. *Eragrostis glutinosa* Tr. Wr. 3423. See *E. elliottii*, p. 244.
11. *Eragrostis pilosa* P. B. Wr. 745. See *E. tephrosanthes*, p. 245.
12. *Eragrostis bahiensis* Schrad. Wr. 3424. See *E. cubensis*, p. 243.
13. *Eragrostis reptans* Ns. Wr. a. 1865 (156). See *E. hypnoides*, p. 244.
14. *Eragrostis sudans* Gr. Wr. 3422. See *E. glutinosa*, p. 244.
15. *Eragrostis ciliaris* Lk. Wr. 1550. See p. 243.
16. "*Festuca laxiflora* Rich." (Rich.) E. [No specimen found.]
17. *Sporobolus virginicus* Kth. Wr. a. 1865 (291). See p. 238.
18. *Sporobolus domingensis* Kth. Wr. a. 1865 (300). See *Sporobolus argutus*, p. 237.
19. *Sporobolus purpurascens* Ham. Wr. 3427. See p. 238, and *S. cubensis*, p. 237.
20. *Sporobolus indicus* R. Br. Wr. 1537. See p. 237.
21. *Sporobolus jacquemontii* Kth. Wr. 3426. See *Sporobolus indicus*, p. 237.
22. *Reynaudia filiformis* Kth. Wr. 3428. See p. 235.
23. *Aristida stricta* Mich. Wr. 736. See *Aristida curtifolia*, p. 235. Wr. 737. See *A. mohrii*, p. 236. Wr. 3430. See *A. refracta*, p. 236.
24. *Aristida refracta* Gr. Wr. 3431. See p. 236.
25. *Aristida purpurascens* Poir. Wr. 3432. See *Aristida erecta*, p. 236.
26. *Aristida interrupta* Cav. Wr. 3433. See *Aristida mohrii*, p. 236.
27. "*Streptachne cubensis* Rich." See *Aristida scabra*, p. 236.
28. *Milium lanatum* R. S. Wr. 3429. See *Leptocoryphium lanatum*, p. 207.
29. *Leersia hexandra* Sw. Wr. 3434. See *Homalocenchrus hexandrus*, p. 234.
30. *Leersia monandra* Sw. Wr. 731. See *Homalocenchrus hexandrus*, p. 234.
31. *Achlaena piptostachya* Gr. Wr. 3487. See p. 235.
32. *Olyra latifolia* L. Rug. 873; Wr. a. 1865 (162). See p. 233. Variety *arundinacea* Tr. Wr. 746. See *Olyra latifolia*, p. 233.
33. *Olyra pauciflora* Sw. Wr. 732. See *Lithachne pauciflora*, p. 233.
34. *Olyra pineti* Wr. Wr. 1536. See *Lithachne pineti*, p. 233.
35. *Olyra strephioides* Gr. Wr. 3435. See *Mniochloa strephioides*, p. 233.
36. *Pharus latifolius* L. Wr. 733. See *Pharus glaber*, p. 234.
37. *Pharus glaber* Kth. Wr. 733b. See p. 234.
38. *Bouteloua humboldtiana* Gr. Wr. 734, 739. See *Bouteloua americana*, p. 240.
39. *Leptochloa mucronata* Kth. Wr. 740. See p. 241. Wr. 3436. See *L. virgata*, p. 242.
40. *Leptochloa virgata* P. B. Wr. 741. See p. 242.
41. *Leptochloa fascicularis* As. Gr. Wr. a. 1865 (303). See p. 241.
42. *Tricuspis simplex* Gr. Wr. 1551. See *Leptochloa spicata*, p. 241.
43. *Chloris cruciata* Sw. Wr. 1548, 1549. See p. 239.
44. *Chloris eleusinoides* Gr. See p. 239.
45. *Chloris radiata* Sw. See p. 240.
46. *Chloris ciliata* Sw. Wr. 743. See p. 239.
47. *Chloris petraea* Thunb. Wr. a. 1865 (293). See p. 240.
48. *Dactyloctenium "aegyptiacum W."* See *D. aegyptium*, p. 241.
49. *Eleusine indica* G. Wr. 744. See p. 241.
50. *Cynodon dactylon* Pers. See *Capriola dactylon*, p. 238.
51. *Reimaria acuta* Fl. Wr. 3437. See *Reimarochloa brasiliensis*, p. 198.
52. *Paspalum compressum* Ns. Wr. a. 1865 (168). See *Axonopus compressus*, p. 207.
53. *Paspalum platyphyllum* Gr. Wr. 3441, Wr. a. 1865 (174). See *Brachiaria plantaginea*, p. 212.
54. *Paspalum conjugatum* Berg. Wr. 767. See p. 201.
55. *Paspalum lindenianum* Rich. Wr. 3445. See *P. rupestre*, p. 206.
56. *Paspalum nanum* Wr. Wr. a. 1865 (176). See p. 204.
57. *Paspalum distichum* L. variety *vaginatum* Sw. Wr. 1546. See *P. distichum*, p. 202, and *P. vaginatum*, p. 206.
58. *Paspalum notatum* Fl. Wr. 3438. See *P. minus*, p. 203.
59. *Paspalum filiforme* Sw. Wr. 769. See p. 202.

60. *Paspalum alterniflorum* Rich. Rug. 894, Wr. a. 1865 (167). See p. 200.
61. *Paspalum pulchellum* Kth. Wr. 3439. See p. 205.
62. *Paspalum dissectum* L. Wr. 3440. See p. 202.
63. *Paspalum setaceum* Mich. Wr. 3442. See *P. rigidifolium*, p. 205.
64. *Paspalum caespitosum* Fl. Wr. 3443. See p. 201, and *P. arenarium*, p. 201.  
Wr. 3444. See p. 201, *P. clavuliferum*, p. 201, and *P. rupestre*, p. 206.
65. *Paspalum glabrum* Poir. Wr. a. 1865 (298). See p. 202.
66. *Paspalum plicatulum* Mich. Wr. 768. See p. 205.
67. *Paspalum virgatum* L. Wr. 3446. See p. 206.  
Variety *stramineum* Gr. Wr. a. 1865 (302). See *P. virgatum*, p. 206.
68. *Paspalum paniculatum* L. Wr. 766. See p. 204.
69. *Paspalum densum* Poir. Wr. 3447. See p. 202.
70. *Digitaria filiformis* Muhlenb. Wr. 1544. See *Syntherisma filiformis*, p. 209,  
and *S. leucocoma*, p. 209.
71. *Digitaria pulchella* Gr. Wr. 3448. See *Mniochloa pulchella*, p. 233.
72. *Digitaria marginata* Lk. Wr. 765. See *Axonopus compressus*, p. 207.  
Variety *erigona* Lk. Wr. a. 1865 (178, 294). See *Syntherisma sanguinalis*,  
p. 209.
73. *Digitaria setigera* Rth. Wr. 764. See *Syntherisma digitata*, p. 209.
74. *Eriochloa punctata* Ham. Wr. 1542. See p. 208.
75. *Stenotaphrum americanum* Schrk. Wr. 3490. See *Stenotaphrum secundum*,  
p. 232.
76. *Orthopogon "hirtellus* R. Br." See *Oplismenus hirtellus*, p. 229.
77. *Orthopogon loliaceus* Spreng. Wr. 751. See *Oplismenus hirtellus*, p. 229.
78. *Orthopogon setarius* Spreng. Wr. 1543. See *Oplismenus hirtellus*, p. 229.
79. *Panicum lolium* Ns. Wr. 3449. See *Mesosetum rottboellioides*, p. 211.
80. *Panicum paspaloides* Pers. Wr. 761. See *Panicum geminatum*, p. 222.
81. *Panicum colonum* L. Wr. 752. See *Echinochloa colona*, p. 213.
82. *Panicum crusgalli* L. Rug. 889. See *Echinochloa crusgalli*, p. 213.
83. *Panicum prostratum* Lam. Rug. 195; Wr. 762. See *P. reptans*, p. 225.
84. *Panicum grossarium* L. Wr. a. 1865 (304). See *P. adspersum*, p. 217.
85. *Panicum distantiflorum* Rich. Wr. 3452. See p. 220.
86. *Panicum fuscum* Sw. Wr. 754. See *P. fasciculatum*, p. 221.
87. *Panicum molle* Sw. Wr. 1545. See *P. numidianum*, p. 224.
88. *Panicum oryzoides* Sw. Wr. 3466. See *P. zizanioides*, p. 228.
89. *Panicum stenodes* Gr. Wr. a. 1865 (192). See p. 227.
90. *Panicum neuranthum* Gr. Wr. 3453. See p. 224. Wr. a. 1865. See *P. chrys-*  
*opsidifolium*, p. 218, and *P. fusiforme*, p. 222.  $\beta$  *ramosum*. Wr. 3454.  
See *P. chrysopsidifolium*, p. 218, and *P. fusiforme*, p. 222.
91. *Panicum proliferum* Lam. variety *pilosum* Wr. a. 1865 (186). See *P. chloro-*  
*ticum*, p. 218. Variety *strictum* Wr. 3456. See *P. chloroticum*, p. 218.
92. *Panicum diffusum* Sw. Wr. 1540. See p. 220.
93. *Panicum durum* Gr. Wr. 1539. See *Alloteropsis dura*, p. 211.
94. *Panicum laxum* Sw. Wr. 759. See p. 223.  
Variety *variegatum* Gr. Wr. 3450. See *P. exiguilorum*, p. 221.
95. *Panicum distichum* Lam. variety *pilosum* Sw. Wr. 3451. See *P. pilosum*, p. 225.
96. *Panicum maximum* Jacq. See p. 224.
97. *Panicum virgatum* L. variety *cubense* Wr. a. 1865. (183). See p. 227.
98. *Panicum rudgei* R. S. Wr. a. 1865 (281). See *P. hirtivaginum*, p. 223.
99. *Panicum hirsutum* Sw. Wr. a. 1865 (297). See p. 222.
100. *Panicum lindenii* Gr. See *P. glutinosum*, p. 222.
101. *Panicum pallens* Sw. Wr. 750. See *Ichnanthus pallens*, p. 228. 3468. See  
*Ichnanthus mayarensis*, p. 228. 750 *posterius* (887). See *Ichnanthus*  
*pallens*, p. 228.



102. *Panicum divaricatum* L. Wr. 747. See p. 220.  
Variety *puberulum* Gr. Wr. 748. See *P. divaricatum*, p. 220.
103. *Panicum rugelii* Gr. Rug. 188; Wr. 3465. See p. 226.
104. *Panicum sloanei* Gr. Rug. 872; Wr. a. 1865 (269). See p. 226.
105. *Panicum martinicense* Gr. Wr. 3457. See *P. grisebachii*, p. 222.
106. *Panicum glutinosum* Sw. Wr. 757. See p. 222.
107. *Panicum rugulosum* Trin. variety *hirtiglume* Gr. Wr. 3455. See *P. sellovii*, p. 226.
108. *Panicum cayennense* Lam. Wr. (891). See p. 218.
109. *Panicum brevifolium* L. Wr. 1538. See *P. trichoides*, p. 227.
110. *Panicum cyanescens* Ns. Wr. 3458. See *P. parvifolium*, p. 225. Wr. 3459. See *P. nitidum*, p. 224.
111. *Panicum tricanthum* Ns. Wr. 753. See p. 227.
112. *Panicum dichotomum* L. variety *glabrescens* Gr. Wr. 3462. See *P. erectifolium*, p. 221. Wr. 3463. See *P. caerulescens*, p. 219; *P. leucothrix*, p. 224; *P. tenue*, p. 227; *P. wrightianum*, p. 228.  
Variety *nodiflorum* Lam. Wr. 3460. See *P. lancearium*, p. 223. Wr. 3461. See *P. chrysosidifolium*, p. 218; *P. fusiforme*, p. 222; *P. lancearium*, p. 223; *P. pauciciliatum*, p. 225.
113. *Panicum viscidum* Ell. Wr. 3467. See *P. scoparium*, p. 226.
114. *Panicum exiguiflorum* Gr. Wr. a. 1865. See p. 221.
115. *Isachne leersoides* Gr. Wr. 755. See p. 208. Wr. 756. See *Panicum exiguiflorum*, p. 221.
116. *Hymenachne myurus* P. B. Wr. 3469. See *H. amplexicaulis*, p. 212.
117. *Hymenachne fluviatilis* Ns. Wr. 3470. See *Sacciolepis vilvoides*, p. 213.
118. *Hymenachne striata* Gr. Wr. a. 1865 (198). See *Sacciolepis striata*, p. 213.
119. *Setaria glauca* P. B. Wr. 3472. See *Chaetochloa imberbis*, p. 230.  
Variety *imberbis* R. S. Wr. a. 1865 (199). See *Chaetochloa imberbis*, p. 230.  
Variety *penicillata* Gr. Wr. 3473. See *Chaetochloa imberbis*, p. 230.
120. *Setaria onurus* Gr. Wr. 3474. See *Chaetochloa onurus*, p. 230.
121. *Setaria setosa* P. B. Rug. 880; Wr. a. 1865 (287). See *Chaetochloa onurus*, p. 230.
122. *Pennisetum setosum* Rich. Wr. 3475. See p. 232.
123. *Gymnothrix domingensis* Spreng. Wr. 1547. See *Pennisetum domingense*, p. 232.
124. *Cenchrus* "myosuroides Kth." [No specimen found.]
125. *Cenchrus echinatus* L. Wr. 3476. See *Cenchrus viridis*, p. 231.
126. *Cenchrus distichophyllus* Gr. Wr. 3475. See p. 231.
127. *Anthephora elegans* Schreb. Wr. a. 1865 (308). See *A. hermaphrodita*, p. 196.
128. *Echinolaena* Sp. Wr. 760. See *Ichnanthus wrightii*, p. 229.
129. *Arundinella martinicensis* Tr. Wr. 3478. See p. 197.
130. *Arundinella phragmitoides* Gr. Wr. 3479. See *A. deppeana*, p. 196.
131. *Arundinella cubensis* Gr. Wr. 1552. See *A. peruviana*, p. 197.
132. *Tricholaena* "insularis Gr." See *Valota insularis*, p. 210.
133. *Lappago aliena* Spreng. Wr. 3489. See *Nazia aliena*, p. 196.
134. *Manisuris granularis* Sw. Wr. 1553. See *Hackelochloa granularis*, p. 191.
135. *Rottboellia impressa* Gr. Wr. a. 1865 (201). See *Manisuris impressa*, p. 191.
136. *Andropogon secundus* W. Wr. 1559. See *Heteropogon contortus*, p. 196.
137. *Andropogon saccharoides* Sw. Wr. 1556. See *A. leucopogon*, p. 193.
138. *Andropogon* "Ischaemum L. (Rich. Lind. 1818)." This specimen has not been examined.
139. *Andropogon brevifolius* Sw. Wr. 1558. See p. 192.
140. *Andropogon tener* Kth. Wr. 3482. See p. 194.
141. *Andropogon gracilis* Spreng. Wr. 1557, 3484. See p. 193.
142. *Andropogon* "scoparius Mich." Rich. See *A. gracilis*, p. 193.
143. *Andropogon fastigiatus* Sw. 3483, 3485. See p. 193.
144. *Andropogon* "nutans L." See *Sorghastrum*, p. 195. [No specimen found.]



145. *Andropogon setosus* Gr. Wr. a. 1865 (208). See *Sorghastrum setosum*, p. 195.  
 146. *Anatherum domingense* R. S. Wr. a. 1865 (202). See *Andropogon leucostachys*, p. 193.  
 147. *Anatherum bicornes* P. B. Wr. 770. See *Andropogon bicornes*, p. 192.  
 148. *Anatherum macrurum* Gr. Wr. 1555. See *Andropogon glomeratus*, p. 193.  
 149. *Anatherum spathiflorum* Gr. Wr. 3481. See *Andropogon spathiflorus*, p. 194.  
 150. *Anatherum inerme* Gr. Wr. 3480. See *Andropogon spathiflorus*, p. 194.  
 151. *Sorghum halepense* Pers. Wr. 3488. See *Holcus halepensis*, p. 195.  
 152. *Imperata caudata* Tr. Wr. 3486. See *I. brasiliensis*, p. 190.  
 153. *Triscenia ovina* Gr. Wr. 756. See p. 198.  
 154. *Paratheria prostrata* Gr. Wr. a. 1865 (207). See p. 232.

### GRASSES OF SAUVALLE'S FLORA CUBANA.<sup>a</sup>

2721. *Leersia monandra* Sw. 731. See *Homalocenchrus monandrus*, p. 235.  
 2722. *Leersia hexandra* Sw. 3484. See *Homalocenchrus hexandrus*, p. 234.  
 2723. *Oryza sativa* L. 3838. See p. 234.  
 2724. *Caryochloa bahiensis* Steud. 3813. See *Luziola bahiensis*, p. 234.  
 2725. *Uniola paniculata* L. 3823. See p. 245.  
 2726. "*Uniola virgata* Gris" Rugel. See *Uniola virgata*, p. 245.  
 2727. *Eragrostis excelsa* Gris. 3425. See p. 244.  
 2728. *Eragrostis nitida* Chapm. 3423. See *E. elliottii*, p. 244.  
 2729. *Eragrostis sudans* Gris. 3422. See *E. glutinosa*, p. 244.  
 2730. *Eragrostis ciliaris* Link. 1550. See p. 243.  
 2731. *Eragrostis poaeoides* Beauv. 745, 3824. See *E. tephrosanthes*, p. 245.  
 2732. *Eragrostis reptans* Nees. 3826. See *E. hypnoides*, p. 244.  
 2733. *Eragrostis bahiensis* Schrad. 3424. See *E. cubensis*, p. 243.  
 2734. *Eragrostis pilifera* Benth. 3825. See *E. cubensis*, p. 243.  
 2735. *Vilfa virginiana* Beauv. 3830. See *Sporobolus virginicus*, p. 238.  
 2736. *Vilfa indica* Steud. 1537, 3829. See *Sporobolus indicus*, p. 237.  
 2737. *Vilfa jacquemontii* Kth. 3426. See *Sporobolus indicus*, p. 237.  
 2738. *Vilfa arguta* Nees. 3828. See *Sporobolus argutus*, p. 237.  
 2739. *Vilfa purpurascens* Beauv. 3427. See *Sporobolus cubensis*, p. 237, and *S. purpurascens*, p. 238.  
 2740. *Poa airoides* Kth. 3827. See *Eragrostis airoides*, p. 243.  
 2741. *Arthrostylidium cubense* Rupr. 3809, 3811. See p. 246.  
 2742. *Arthrostylidium* sp.? 3810. See *A. urbanii*, p. 246.  
 2743. *Arthrostylidium* sp.? 3808. See *A. distichum*, p. 246.  
 2744. *Arthrostylidium* sp. (sine numero). See *A. capillifolium*, p. 246.  
 2745. *Arthrostylidium fimbriatum* Gris. 1554. See p. 246.  
 2746. *Arthrostylidium capillifolium* Gris. 738. See p. 246.  
 2747. *Gynerium saccharoides* Kth. 1560, 3477. See *G. sagittatum*, p. 242.  
 2748. *Leptochloa fascicularis* Gray. 3812, 3822. See p. 241.  
 2749. *Leptochloa virgata* Beauv. 741, 3436. See p. 242.  
 2750. *Leptochloa mucronata* Kth. 740. See p. 241.  
 2751. *Muhlenbergia spicata* Munn. 3894. See *Gramen* sp., p. 246.  
 2752. *Muhlenbergia capillaris* Trin. 3836. See p. 237.  
 2753. *Aristida scabra* Kth. 3835. See p. 236.  
 2754. *Aristida purpurascens* Poir. 3432. See *A. erecta*, p. 236.  
 2755. *Aristida dispersa* Trin. 737. See *A. mohrii*, p. 236. 736. See *A. curtifolia*, p. 235. 3430, 3431. See *A. refracta*, p. 236. 3343.<sup>b</sup> See *A. mohrii*, p. 236.

<sup>a</sup> See footnote, page 181.

<sup>b</sup> The discrepancies in numbers are doubtless due to typographical errors in Sauvalle's list.

2756. *Reimaria acuta* Flügge. 3437. See *Reimarochloa brasiliensis*, p. 198.  
 2757. *Reinaudia filiformis* Kth. 3428. See *Reynaudia filiformis*, p. 235.  
 2758. *Eleusine indica* Gaertn. 744. See p. 241.  
 2759. *Dactyloctenium aegyptiacum* Willd. 3831. See *D. aegyptium*, p. 241.  
 2760. *Cynodon dactylon* Pers. (sine numero). See *Capriola dactylon*, p. 238.  
 2761. *Chloris ciliata* Sw. 743. See p. 239.  
 2762. *Chloris petraea* Thunb. 3719. See p. 240.  
 2763. *Chloris radiata* Sw. 742. See p. 240.  
 2764. *Chloris brevigluma* sp. nov. 1848 p. p. See *Chloris cruciata*, p. 239.  
 2765. *Chloris cruciata* Sw. 1548 p. p., 1549. See *C. eleusinoides*, p. 239.  
 2766. *Chloris beyrichiana* Kth. 3819. See *C. eleusinoides*, p. 239.  
 2767. *Chloris eleusinoides* Gris. 3818. See p. 239.  
 2768. *Bouteloua humboldtiana* Gris. 739 p. p., 3815. See *B. americana*, p. 240.  
 2769. *Bouteloua porphyrantha* spec. nov. 739 p. p. 734, 3816. See *B. americana*, p. 240.  
 2770. *Achlaena piptostachya* Gris. 3487. See p. 235.  
 2771. *Tricuspis simplex* Gris. 1551. See *Leptochloa spicata*, p. 241.  
 2772. *Olyra strephioides* Gris. 3435. See *Mniochloa strephioides*, p. 233.  
 2773. *Olyra pineti* Wr. 1536. See *Lithachne pineti*, p. 233.  
 2774. *Olyra pauciflora* Sw. 732. See *Lithachne pauciflora*, p. 233.  
 2775. *Olyra latifolia* L. 746. See p. 233.  
 2776. *Strepium?* *pulchellum* sp. nov. 3448. See *Mniochloa pulchella*, p. 233.  
 2777. *Milium lanatum* R. & Sch. 3429. See *Leptocoryphium lanatum*, p. 207.  
 2778. *Paspalum conjugatum* Berg. 767. See p. 201.  
 2779. *Paspalum rupestre* Nees. 3445. See p. 206.  
 2780. *Paspalum nanum* Wr. 3842. See p. 204.  
 2781. *Paspalum distichum* L. 3854? See *P. vaginatum*, p. 206.  
     Variety *vaginatum* 1546. See *P. vaginatum*, p. 206, and *P. distichum*, p. 202.  
 2782. *Paspalum alterniflorum* Rich? 3841. See p. 200.  
 2783. *Paspalum filiforme* Sw. 769. See p. 202.  
 2784. *Paspalum pulchellum* Kth. 3439. See p. 205.  
 2785. *Paspalum notatum* Flügge. 3438. See p. 204 and *P. minus*, p. 203.  
 2786. *Paspalum dissectum* L. 3440. See p. 202.  
 2787. *Paspalum setaceum* Mx. 3442. See *P. rigidifolium*, p. 205.  
 2788. *Paspalum caespitosum* Flügge 3443, 3444. See p. 201.  
 2789. *Paspalum leucocheilum* sp. nov. See *P. virgatum*, p. 206.  
 2790. *Paspalum papillosum* Spr.? 3844, p. p. See p. 204.  
 2791. *Paspalum clavuliferum* sp. nov. 3444 p. p. See p. 201.  
 2792. *Paspalum decumbens* Sw. 3851. See *P. pedunculatum*, p. 205.  
 2793. *Paspalum virgatum* L. 3446. See p. 206. 3840. See *P. millegrana*, p. 203.  
 2794. *Paspalum plicatulum* Mx. 768, 3839. See p. 205. 3843. See *P. elatum*, p. 202.  
 2794. *Paspalum densum* Poir. 3447. See p. 202.  
 2795. *Paspalum paniculatum* L. 766. See p. 204.  
 2796. *Paspalum rottboellioides* sp. nov. 3864. See p. 205.  
 2797. *Paspalum hemicryptum* sp. nov. 3847. See p. 203.  
 2798. *Paspalum caudicatum* sp. nov. 3866. See *P. nanum*, p. 204.  
 2799. *Paspalum swartzianum* Flügge? 3848. See *Paspalum* sp., p. 206.  
 2800. *Paspalum compressum* Nees. 3849. See *Axonopus compressus*, p. 207.  
 2801. *Panicum filiforme* L. 1544. See *Syntherisma filiformis*, p. 209, and *S. leucoma*, p. 209.  
 2802. *Panicum horizontale* Meyer. 764. See *Syntherisma digitata*, p. 209, and *S. sanguinalis*, p. 209. 3883. See *Syntherisma sanguinalis*, p. 209.  
 2803. *Panicum sclerochloa* Trin? 3859. See *Mesosetum wrightii*, p. 211.  
 2804. *Panicum rottboellioides* Kth. 3449. See *Mesosetum rottboellioides*, p. 211.

2805. *Panicum platyphyllum* Munro. 3441, 3867. See *Brachiaria plantaginea*, p. 212.  
 2806. *Panicum paspaloides* Pers. 761. See *Panicum geminatum*, p. 222.  
 2807. *Panicum colonum* L. 752. See *Echinochloa colona*, p. 213.  
 2808. *Panicum crus-galli* L. 3879. See *Echinochloa walteri*, p. 213.  
 2809. *Panicum prostratum* Lam. 762, 3857. See *P. reptans*, p. 225.  
 2810. *Panicum grossarium* L. 3869. See *P. adpersum*, p. 217.  
 2811. *Panicum laxum* Sw. 759, 3862. See p. 223.  
 2812. *Panicum mayarense* sp. nov. 3468 p. p. See *Ichnanthus mayarensis*, p. 228.  
 2813. *Panicum amphistemon* sp. nov. 3464. See *Alloteropsis amphistemon*, p. 211.  
 2814. *Panicum distantiflorum* Rich. 3452. See p. 220.  
 2815. *Panicum diffusum* Sw. 1540, 3877. See p. 220.  
 2816. *Panicum fuscum* Sw. 754. See *P. fasciculatum*, p. 221.  
 2817. *Panicum molle* Sw. 1545. See *P. numidianum*, p. 224.  
 2818. *Panicum oryzoides* Sw. 3466. See *P. zizanioides*, p. 228.  
 2819. *Panicum stenodes* Gris. 3860. See *P. chloroticum*, p. 218. 3870. See *P. tenerum*, p. 227. 3871. See p. 227.  
 2820. *Panicum proliferum* Lam. 3456, 3861. See *P. chloroticum*, p. 218.  
 2821. *Panicum durum* Gris. 1539, 3868. See *Alloteropsis dura*, p. 211.  
 2822. *Panicum distichum* Lam. 3451. See *P. pilosum*, p. 225.  
 2823. *Panicum agrostoides* Muhl. 3862. See *P. condensum*, p. 219.  
 2824. *Panicum maximum* Jacq. See p. 224.  
 2825. *Panicum virgatum* L. 3873. See *P. virgatum cubense*, p. 227.  
 2826. *Panicum altissimum* Mey. 3872. See *P. megiston*, p. 224.  
 2827. *Panicum rudgei* R. S.? 758. See *P. hirtivaginum*, p. 223.  
 2828. *Panicum divaricatum* L. 747, 748. See p. 220. 3465. See *P. rugelii*, p. 226.  
 2829. *Panicum sloanei* Gris. 3878. See p. 226.  
 2830. *Panicum martinicense* Gris. 749. See *P. compactum*, p. 219. 3457. See *P. grisebachii*, p. 222.  
 2831. *Panicum lasianthum* Trin. 3455, 3855. See *P. sellovii*, p. 226.  
 2832. *Panicum glutinosum* Sw. 757. See p. 222.  
 2833. *Panicum cayennense* Lam? (Sine numero). See p. 218.  
 2834. *Panicum dichotomum* L. 3460. See *P. lancearium*, p. 223. 3461. See *P. chrysopsidifolium*, p. 218, *P. fusiforme*, p. 222, *P. lancearium*, p. 223, and *P. pauciciliatum*, p. 225. 3462. See *P. erectifolium*, p. 221. 3463. See *P. leucothrix*, p. 224, *P. caerulescens*, p. 219, *P. tenue*, p. 227, and *P. wrightianum*, p. 228. 3874. See *P. acuminatum*, p. 217. 3875. See *P. polycaulon*, p. 225. *P. strigosum*, p. 227. 3876. See *P. pauciciliatum*, p. 225. 3453. See *P. fusiforme*, p. 222, *P. chrysopsidifolium*, p. 218, and *P. neuranthum*, p. 224. 3454. See *P. chrysopsidifolium*, p. 218, and *P. fusiforme*, p. 222.  
 2835. *Panicum brevifolium* L. 1538. See *P. trichoides*, p. 227.  
 2836. *Panicum cyanescens* L. 3458. See *P. parvifolium*, p. 225. 3459. See *P. nitidum*, p. 224.  
 2837. *Panicum microcarpum* Muhl. 753. See *P. trichanthum*, p. 227.  
 2838. *Panicum viscidum* Ell. 3467. See *P. scoparium*, p. 226.  
 2839. *Panicum pallens* Sw. 750. See *Ichnanthus pallens*, p. 228. 3882. See *Ichnanthus nemorosus*, p. 228.  
 2840. *Panicum nemorosum* Sw. 3858, 3881. See *Ichnanthus nemorosus*, p. 228.  
 2841. *Panicum stoloniferum* Poir? 3880. See *Ichnanthus wrightii*, p. 229.  
 2842. *Panicum amplexicaule* Rudge. 3863. See *Hymenachne auriculata*, p. 212.  
 2843. *Panicum gibbum* Ell. 3885. See *Sacciolepis striata*, p. 213.  
 2844. *Panicum vilvroides* Trin. 3470. See *Sacciolepis vilvroides*, p. 213.  
 2845. *Hymenachne myurus* Beauv. 3469. See *H. amplexicaulis*, p. 212.  
 2846. *Eriochloa punctata* Hamilt. 1542. See p. 208.  
 2847. *Eriochloa annulata* Kth? 3886. See *Eriochloa ramosa*, p. 208.

2848. *Chamaerhaphis parvigluma* Munro. 3909. See *Paratheria prostrata*, p. 232.
2849. "*Orthopogon hirtellus* R. Br." See *Oplismenus hirtellus*, p. 229.
2850. *Orthopogon setarius* Spreng. 1593. See *Oplismenus hirtellus*, p. 229.
2851. *Orthopogon loliaceus* Spreng. 751. See *Oplismenus hirtellus*, p. 229.
2852. *Setaria glauca* Beauv. 3888. See *Chaetochloa imberbis penicillata*, p. 230.
2853. *Setaria setosa* Beauv. 3474, 3487. See *Chaetochloa onurus*, p. 230.
2854. *Pennisetum setosum* Rich. 3471. See p. 232.
2855. *Gymnothrix domingensis* Spreng. 1547. See *Pennisetum domingense*, p. 232.
2856. *Stenotaphrum americanum* Schrank. 3490. See *S. secundum*, p. 232.
2857. *Isachne leersiioides* Gris. 1547. See p. 208.
2858. *Cenchrus viridis* Spreng. 3889. See p. 231.
2859. *Cenchrus tribuloides* L. 3476. See *Cenchrus carolinianus*, p. 231 and *C. viridis*, p. 231.
2860. *Cenchrus distichophyllus* Gris. 3475. See p. 231.
2861. *Antheophora elegans* Schreb. 3870. See *A. hermaphrodita*, p. 196.
2862. *Lappago racemosa* Willd. 3489. See *Nazia aliena*, p. 196.
2863. *Triscenia ovina* Gris. 756. See p. 198.
2864. *Arundinella brasiliensis* Radd. 1552. See *A. peruviana*, p. 197.
2865. *Arundinella phragmatoides* Gris. 3479. See *A. deppeana*, p. 196.
2866. *Arundinella martinicensis* Gris. 3478. See p. 197.
2867. *Tricholena insularis* Gris. 1541. See *Valota insularis*, p. 210.
2868. *Rottboellia impressa* Gris. 3904. See *Manisuris impressa*, p. 191.
2869. *Rottboellia filifolia*. Sp. nov. 3905. See *Manisuris loricata*, p. 191.
2870. *Manisuris granularis* Sw. 1553. See *Hackelochloa granularis*, p. 191.
2871. *Andropogon contortus* L. 1559. See *Heteropogon contortus*, p. 196.
2872. *Andropogon saccharoides* Sw. 1556. See *A. leucopogon*, p. 193.
2873. *Andropogon alopecuroides* L. 3903. See *Erianthus saccharoides*, p. 190.
2874. *Andropogon halepensis* Sibth. 3488. See *Holcus halepensis*, p. 195.
2875. *Andropogon nutans* L. 3896. See *Sorghastrum francavillanum*, p. 195. 3897.  
See *Sorghastrum setosum*, p. 195.
2876. *Andropogon leucostachyus* Kth. 3900. See p. 193.
2877. *Andropogon virginicus* L. 3901. See p. 194.
2878. *Andropogon spathiflorum* Kth. 3481. 3480. See p. 194.
2879. *Andropogon macrourus* Mx. 1555. See *A. glomeratus*, p. 193.
2880. *Andropogon bicornis* L. 770. See p. 192.
2881. *Andropogon tener* Kth. 1558? See p. 194, and *A. brevifolius*, p. 192. 3482.  
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2882. *Andropogon brevifolius* Sw. 1558. See p. 192.
2883. *Andropogon gracilis* Spreng. 3480. See p. 193.
2884. *Andropogon* sp. 3898. See *A. cubensis*, p. 192.
2885. *Andropogon wrightii* Munro, 293, 263, 3895. See *Rhaphis pauciflora*, p. 195.
2886. *Andropogon fastigiatus* Sw. 3483. See p. 193.
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2889. *Andropogon* sp. 3891. See *A. semiberbis*, p. 194.
2890. *Imperata caudata* Trin. 3486. See *I. brasiliensis*, p. 190.
2891. *Perotis? cubana* spec. nov. 735. See *Chaetium cubanum*, p. 232.

## GRASSES COLLECTED IN CUBA BY WRIGHT, ARRANGED BY NUMBERS.

731. *Homalocenchrus monandrus*.  
 732. *Lithachne pauciflora*.  
 733. *Pharus glaber*.  
 734. *Bouteloua americana*.  
 735. *Chaetium cubanum*.  
 736. *Aristida curtifolia*.  
 737. *Aristida mohrii*.  
 738. *Arthrostylidium capillifolium*.  
 739. *Bouteloua americana*.  
 740. *Leptochloa mucronata*.<sup>a</sup>  
     *Leptochloa virgata*.  
 741. *Leptochloa mucronata*.  
     *Leptochloa virgata*.  
 742. *Aristida mohrii*.  
     *Chloris radiata*.  
 743. *Chloris ciliata*.  
 744. *Eleusine indica*.  
 745. *Eragrostis tephrosanthes*.  
 746. *Olrya latifolia*.  
 747. *Panicum divaricatum*.  
 748. *Panicum divaricatum*.  
 749. *Panicum compactum*.  
 750. *Ichnanthus pallens*.  
 751. *Oplismenus hirtellus*.  
 752. *Echinochloa colona*.  
 753. *Panicum tricanthum*.  
 754. *Panicum fasciculatum*.  
 755. *Panicum exiguiflorum*.  
     *Isachne leersioides*.  
 756. *Triscenia ovina*.  
     *Panicum exiguiflorum*.  
 757. *Panicum glutinosum*.  
 758. *Panicum hirtivaginum*.  
 759. *Panicum laxum*.  
 760. *Ichnanthus wrightii*.  
 761. *Panicum geminatum*.  
 762. *Panicum reptans*.  
 763. *Panicum reptans*.  
     *Axonopus compressus*.  
 764. *Syntherisma digitata*.  
     *Syntherisma sanguinalis*.  
 765. *Axonopus compressus*.  
 766. *Paspalum paniculatum*.  
 767. *Paspalum conjugatum*.  
 768. *Paspalum plicatulum*.  
 769. *Paspalum filiforme*.  
 770. *Andropogon bicornis*.  
 1536. *Lithachne pineti*.  
 1537. *Sporobolus indicus*.  
 1538. *Panicum trichoides*.  
 1539. *Alloterpopsis dura*.  
 1540. *Panicum diffusum*.  
 1541. *Valota insularis*.  
 1542. *Eriochloa punctata*.  
 1543. *Oplismenus hirtellus*.  
 1544. *Syntherisma filiformis*.  
     *Syntherisma leucocoma*.  
 1545. *Panicum numidianum*.  
 1546. *Paspalum distichum*.  
     *Paspalum vaginatum*.  
 1547. *Isachne leersioides*.  
     *Pennisetum domingense*.  
 1548. *Chloris cruciata*.  
     *Chloris eleusinoides*.  
 1549. *Chloris cruciata*.  
     *Chloris eleusinoides*.  
 1550. *Eragrostis ciliata*.  
 1551. *Leptochloa spicata*.  
 1552. *Arundinella peruviana*.  
 1553. *Hackelochloa granularis*.  
 1554. *Arthrostylidium fimbriatum*.  
 1555. *Andropogon bicornis*.  
     *Andropogon glomeratus*.  
 1556. *Andropogon leucopogon*.  
 1557. *Andropogon gracilis*.  
 1558. *Andropogon brevifolius*.  
     *Andropogon tener*.  
 1559. *Alloterpopsis dura*.  
     *Heteropogon contortus*.  
 1560. *Gynierium sagittatum*.  
 1593. *Oplismenus hirtellus*.  
 1848. *Chloris cruciata*.  
 2823. *Uniola paniculata*.  
 2829. *Sporobolus indicus*.  
 2830. *Sporobolus virginicus*.  
 3422. *Eragrostis glutinosa*.  
     *Sporobolus cubensis*.  
 3423. *Eragrostis eliottii*.  
 3424. *Eragrostis cubensis*.  
 3425. *Eragrostis excelsa*.  
 3426. *Sporobolus indicus*.  
 3427. *Sporobolus cubensis*.  
     *Sporobolus purpurascens*.  
 3428. *Reynaudia filiformis*.  
 3429. *Leptocoryphium lanatum*.  
 3430. *Aristida refracta*.  
 3431. *Aristida refracta*.  
 3432. *Aristida erecta*.  
 3433. *Aristida mohrii*.  
 3434. *Homalocenchrus hexandrus*.

<sup>a</sup> Two or more species when here listed under one number were all distributed under this number by Wright.

3435. *Mniochloa strephioides*.  
 3436. *Leptochloa virgata*.  
 3437. *Reimarochloa brasiliensis*.  
 3438. *Paspalum notatum*.  
     *Paspalum minus*.  
 3439. *Paspalum pulchellum*.  
 3440. *Paspalum dissectum*.  
 3441. *Brachiaria plantaginea*.  
 3442. *Paspalum rigidifolium*.  
 3443. *Paspalum arenarium*.  
     *Paspalum caespitosum*.  
 3444. *Paspalum caespitosum*.  
     *Paspalum clavuliferum*.  
     *Paspalum papillosum*.  
     *Paspalum rupestre*.  
 3445. *Paspalum rupestre*.  
 3446. *Paspalum virgatum*.  
     *Paspalum virgatum schreberianum*.  
 3447. *Panicum densum*.  
 3448. *Mniochloa pulchella*.  
 3449. *Mesosetum rottboellioides*.  
 3450. *Panicum exiguiflorum*.  
 3451. *Panicum pilosum*.  
 3452. *Panicum distantiflorum*.  
 3453. *Panicum chrysopsidifolium*.  
     *Panicum fusiforme*.  
     *Panicum neuranthum*.  
 3454. *Panicum chrysopsidifolium*.  
     *Panicum fusiforme*.  
 3455. *Panicum sellovii*.  
 3456. *Panicum chloroticum*.  
 3457. *Panicum griebachii*.  
     *Panicum pilosum*.  
 3458. *Panicum parvifolium*.  
 3459. *Panicum nitidum*.  
 3460. *Panicum lancearium*.  
 3461. *Panicum chrysopsidifolium*.  
     *Panicum fusiforme*.  
     *Panicum lancearium*.  
     *Panicum pauciciliatum*.  
 3462. *Paspalum densum*.  
     *Panicum erectifolium*.  
     *Panicum sellovii*.  
 3463. *Panicum caerulescens*.  
     *Panicum leucothrix*.  
     *Panicum tenue*.  
     *Panicum wrightianum*.  
 3464. *Alloteropsis amethystemon*.  
 3465. *Panicum rugelii*.  
 3466. *Panicum zizanioides*.  
 3467. *Panicum scoparium*.  
 3468. *Ichnanthus mayarensis*.  
 3469. *Hymenachne amplexicaulis*.  
 3470. *Sacciolepis vilvoldes*.  
 3471. *Pennisetum setosum*.  
 3472. *Chaetochloa imberbis*.  
 3473. *Chaetochloa imberbis*.  
 3474. *Chaetochloa onurus*.  
 3475. *Cenchrus distichophyllus*.  
     *Pennisetum setosum*.  
 3476. *Cenchrus viridis*.  
     *Cenchrus carolinianus*.  
 3477. *Gynierium sagittatum*.  
 3478. *Arundinella martinicensis*.  
 3479. *Arundinella deppeana*.  
 3480. *Andropogon gracilis*.  
     *Andropogon spathiflorus*.  
 3481. *Andropogon spathiflorus*.  
 3482. *Andropogon tener*.  
 3483. *Andropogon fastigiatus*.  
 3484. *Andropogon gracilis*.  
 3485. *Andropogon fastigiatus*.  
 3486. *Imperata brasiliensis*.  
 3487. *Chaetochloa onurus*.  
     *Achlaena piptostachya*.  
 3488. *Holcus halepensis*.  
 3489. *Nazia aliena*.  
 3490. *Stenotaphrum secundum*.  
 3719. *Chloris petraea*.  
 3808. *Arthrostylidium distichum*.  
 3809. *Arthrostylidium cubense*.  
 3810. *Arthrostylidium urbanii*.  
 3811. *Arthrostylidium cubense*.  
 3812. *Leptochloa fascicularis*.  
 3813. *Luziola bahiensis*.  
 3814. *Capriola dactylon*.  
 3815. *Bouteloua americana*.  
 3816. *Bouteloua americana*.  
 3817. *Chloris petraea*.  
 3818. *Chloris eleusinoides*.  
 3819. *Chloris eleusinoides*.  
 3821. *Dactyloctenium aegyptium*.  
 3822. *Leptochloa fascicularis*.  
 3823. *Uniola paniculata*.  
 3825. *Eragrostis cubensis*.  
 3826. *Eragrostis hypnoides*.  
 3827. *Eragrostis airoides*.  
 3828. *Sporobolus argutus*.  
 3829. *Sporobolus indicus*.  
 3830. *Sporobolus virginicus*.  
 3831. *Aristida refracta*.  
     *Dactyloctenium aegyptium*.  
 3832. *Aristida refracta*.  
 3833. *Aristida refracta*.  
 3834. *Aristida refracta*.  
 3835. *Aristida scabra*.  
 3836. *Muhlenbergia capillaris*.  
 3837. *Homalocenchrus hexandrus*.



3838. *Oryza sativa*.  
 3839. *Paspalum plicatulum*.  
     *Paspalum pulchellum*.  
 3840. *Paspalum millegrana*.  
 3841. *Paspalum alterniflorum*.  
 3842. *Paspalum nanum*.  
 3843. *Paspalum elatum*.  
 3844. *Paspalum papillosum*.  
 3845. *Paspalum propinquum*.  
 3846. *Paspalum glabrum*.  
 3847. *Paspalum hemicryptum*.  
 3848. *Paspalum* sp.  
 3849. *Axonopus compressus*.  
 3850. *Axonopus compressus*.  
 3851. *Paspalum pedunculatum*.  
 3852. *Panicum diffusum*.  
 3853. *Brachiaria plantaginea*.  
 3854. *Paspalum vaginatum*.  
     *Reimarochloa oligostachya*.  
 3855. *Panicum sellovii*.  
 3856. *Panicum laxum*.  
 3857. *Panicum reptans*.  
 3858. *Ichnanthus nemorosus*.  
 3859. *Mesosetum wrightii*.  
 3860. *Panicum chloroticum*.  
     *Panicum diffusum*.  
     *Panicum hirtivaginum*.  
     *Panicum tenerum*.  
 3861. *Panicum chloroticum*.  
 3862. *Panicum condensum*.  
     *Panicum laxum*.  
 3863. *Hymenachne auriculata*.  
     *Panicum condensum*.  
     *Panicum laxum*.  
 3864. *Paspalum rottboellioides*.  
 3865. *Panicum cayennense*.  
 3866. *Paspalum nanum*.  
 3867. *Brachiaria plantaginea*.  
 3868. *Alloteropsis dura*.  
 3869. *Panicum adspersum*.  
 3870. *Anthephora hermaphrodita*.  
 3870. *Panicum distantiflorum*.  
     *Panicum tenerum*.  
 3871. *Panicum stenodes*.  
 3872. *Panicum megiston*.  
 3873. *Panicum virgatum cubense*.  
 3874. *Panicum acuminatum*.  
 3875. *Panicum polycaulon*.  
     *Panicum strigosum*.  
 3876. *Panicum pauciciliatum*.  
 3877. *Panicum diffusum*.  
     *Panicum exiguiflorum*.  
 3878. *Panicum sloanei*.  
 3879. *Echinochloa walteri*.  
 3880. *Ichnanthus wrightii*.  
 3881. *Ichnanthus nemorosus*.  
 3882. *Ichnanthus nemorosus*.  
 3883. *Syntherisma sanguinalis*.  
 3884. *Syntherisma villosa*.  
 3885. *Sacciolepis striata*.  
 3886. *Eriochloa ramosa*.  
 3887. *Chaetochloa onurus*.  
 3888. *Chaetochloa imberbis penicillata*.  
 3889. *Cenchrus viridis*.  
 3890. *Anthephora hermaphrodita*.  
 3891. *Andropogon semiberbis*.  
 3892. *Trachypogon filifolius*.  
 3893. *Trachypogon filifolius*.  
 3894. Unidentified.  
 3895. *Rhaphis pauciflora*.  
 3896. *Sorghastrum francavillanum*.  
 3897. *Sorghastrum setosum*.  
 3898. *Andropogon cubensis*.  
 3899. *Andropogon nashianus*.  
 3900. *Andropogon leucostachys*.  
 3901. *Andropogon virginicus*.  
 3902. *Andropogon bicornis*.  
 3903. *Erianthus saccharoides*.  
 3904. *Manisuris impressa*.  
 3905. *Manisuris loricata*.  
 3906. *Paratheria prostrata*.  
 3909. *Paratheria prostrata*.



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